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As one of its major activities in carrying out its purpose, the Society publishes a monthly magazine, the Canadian Geographical Journal, which is devoted to every phase of geography — historical, physical and economic — of Canada, of the British Commonwealth and of the other parts of the world. It is the intention to publish articles in this magazine that will be popular in character, easily read, well illustrated, and informative.

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Ontario and Quebec: F. A. DALLYN and W. F. P. MacRAE*

*Head Office: Ottawa—54 Park Ave. (Tel. 2-8032)

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Colour photograph by W. V. Crich

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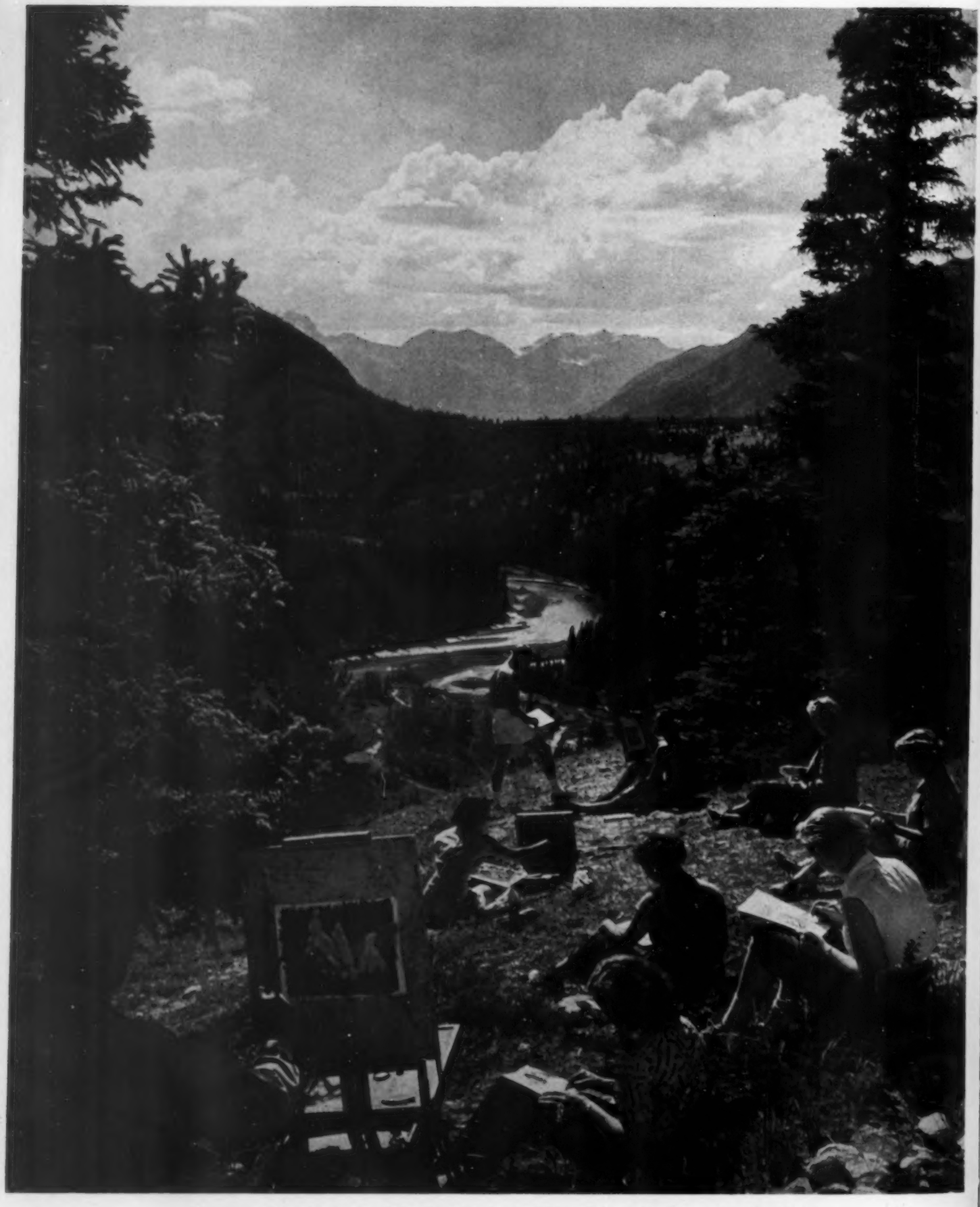


The magnificent setting of the Banff School of Fine Arts in the Canadian Rockies is an inspiration to students in all courses. Art classes were begun in 1935 and have been well attended ever since.

The orchestra practises in the open, under the direction of Clayton Hare of Calgary.

The Banff School of Fine Arts
—An Adventure in Adult Education

by DONALD CAMERON *photographs by* MALAK

On the 13th of August, 1953, a distinguished gathering of leaders in business, education, and the arts, from all over Canada and many parts of the United States, gathered in the smart new auditorium of the Banff School of Fine Arts, in the town of Banff, Alberta. Some seven hundred people had come together to celebrate the formal opening of the new $350,000 first wing of the administration building of the Banff School of Fine Arts. While the audience gathered, the School's twenty-five piece string orchestra played; the hundred-voice Banff school choir was massed on the platform; around the walls, in the foyer and on the mezzanine floor overlooking the auditorium, hundreds of paintings, ranging from modern abstractions to traditional landscapes, were on display, with exhibits of weaving, leathercraft, and ceramics. At intervals, between the official greetings and speeches, brilliant young singers sang solos and duets, from Verdi's *La Traviata* and Bizet's *Carmen*.

During pauses in the ceremonies, through the open windows could be heard the roar of bulldozers and the clack of carpenters' hammers, as the one smoothed the earth around the bowl of the School's open air theatre to be, and the

The performance of the ballet division of the school is a highlight of the annual summer festival.

other put the finishing touches to the first permanent headquarters of one of Canada's most unusual schools. That night the guests were entertained with a sparkling performance by students of the ballet division. The second night, the guests saw the drama division put on an almost professional performance of Christopher Fry's *The Lady's Not for Burning.* All of these events were a part of the opening ceremonies of the Banff School's 21st Annual Summer Festival. Thus, the opening of the new headquarters and the conclusion of the Summer Festival came as a fitting climax to twenty-one years of growth and development, and served as a very appropriate birthday present to mark the School's coming of age.

Twenty-one years ago, in August, 1933, the first students had gathered in the old Bretton Hall Theatre, to be the forerunners of the colourful group of today. There were no string orchestra, no choir, and no opera singers, no exhibitions of paintings, abstract or otherwise, and no weaving, leathercraft, or ceramics. But there were enthusiasm and inspiration and vigour and the will to create.

The Banff School began as a result of a Carnegie grant of $10,000 a year for three years to the Department of Extension of the University of Alberta. The grant was made to enable the University to develop a program in the arts. Today, two of the more obvious results of that initial encouragement are the University's Department of Fine Arts, and the million dollar campus which is now taking shape on Tunnel Mountain.

Ten thousand dollars in 1933 looked like a lot of money when budgets were being cut in all directions. When looked at in terms of the needs of a population of 700,000, mostly rural, scattered over an area of 255,000 square miles, it looked very thin, indeed. In deciding how to make the most effective use of the funds it was agreed that the training of teachers and community leaders, who in turn would teach others,

was a first and necessary step. The idea of establishing the major training centre in Banff was the contribution of Dr. E. A. Corbett, then Director of Extension, and was a stroke of inspiration.

It was agreed that "an experimental School in the Arts Related to the Theatre" would be established in Banff for four weeks in August, 1933, if forty students would register in advance and pay a one dollar registration fee as evidence of their interest and good faith. The National Parks made available the ageing, but still usable, Bretton Hall Theatre. The Banff School District loaned the classrooms of its public schools, and on 1st August, 1933, instead of the minimum and necessary forty students, some one hundred and two adults and a few children presented themselves.

The first instructors were Elizabeth Sterling Haynes, newly-appointed extension specialist in drama in the Department of Extension, and Theodore Cohen, a recent graduate in law of the University, who has since made for himself a successful career in the theatre.

What the School lacked in staff and facilities, it more than made up in enthusiasm, resourcefulness and vitality. Those three qualities have been an outstanding characteristic of the School ever since. The initial School was a success, and created so much enthusiasm that it was decided to repeat the experiment in 1934, and to augment the staff by bringing in Roy Mitchell and Jocelyn Taylor from New York. The registration fee was increased to five dollars, and one hundred and fifty-one adults were in attendance. As there were no dormitories or dining facilities, the students had to live in private homes, hotels or tourist cabins, and get their meals in the local restaurants.

By 1935, with only a residue of the Carnegie grant left, a tuition fee of ten dollars was charged, and the attendance dropped to ninety adults and a number of children. That year, however, marked the beginning of the School's expansion, when a group of art students who were working under the direction of A. C.

Ballet class at practice inside the school. Gweneth Lloyd teaches, with Betty Farally and Eva Von Gencsy.

Leighton of Calgary, were invited to join the students of the theatre. Leighton's students had been camping out at Seebe, thirty miles from Banff, and the first suggestion of amalgamation was a sort of companionate marriage. The two groups were to remain under separate direction, but share the same buildings for the first year, after which a more formal arrangement could be made. The painters and the theatre students complemented each other, as would be expected, and for 1936 arrangements were made to add a master class in piano, and to call the enlarged institution the Banff School of Fine Arts.

The response to the enlarged program was encouraging from the start. One hundred and eighty-eight adults and sixty children participated in the courses, and for the first time a significant number came from beyond the borders of Alberta, when twenty-two points in Canada and the United States were represented.

1936 also marked the beginning of the development of a scholarship policy, which has grown in importance each year since that time. In 1953, some sixty-three scholarships, worth over $6,000 were awarded, and this is undoubtedly one of the best and soundest investments that can be made.

The year 1936 was a critical year in the history of the School. Dr. Corbett, who had played a major role in starting the School, left the University, and the present Director took over. The initial Carnegie grant was exhausted, but the Foundation agreed, on the basis of results obtained in the first three years, to extend the grant for a further two years.

Courses in creative writing and in choral singing were added in 1937. However, the most important development in the School's organization took place with the establishment of simple co-operative dining and housing facilities. A relatively modest private home was taken over and seventeen students shared the accommodation and hired a cook to prepare their meals. They provided an object lesson in beating the high cost of living in Banff by getting their room and meals for thirty days for thirty dollars! From this modest beginning has developed the present modern housing and dining organization under which the School now serves thirteen hundred meals a day in its own dining rooms and finds housing for seven hundred and fifty people at the height of the tourist season.

The year 1937 not only marked the beginning of the residential School, but it also saw the beginning of what has become another major activity—The Banff School Summer Festival. Begun as an achievement week during which the productions of the painting, drama and music divisions were given public recognition, the original Festival Week has now grown to two, and is known as the Banff School of Fine Arts Summer Festival. Each day and night during the first two weeks of August there are exhibitions of paintings, weaving, ceramics, and leathercraft. There are productions of one-act and full-length plays, some of them written in the play-writing classes of the School. There are full productions of opera, ballet, and choral music, produced for packed audiences, which in increasing numbers come from all over the world, and plan their vacations to be in Banff during the summer Festival.

Speaking of this in the summer of 1951, the distinguished English painter, William Townsend, said that "outside of some of the capitals of Europe I know of no other place where a program of comparable richness and variety is being presented in the summer months".

In response to demand from the teachers of French in Alberta High Schools, an oral French division was added in 1939. In 1941, with the assistance of a second Carnegie grant, a handicraft division, offering courses in weaving and design, modelling and pottery, and leathercraft, was added. In 1942, with some assistance from the Rockefeller Foundation, The Alberta Folklore and Local History Project was initiated for the purpose of encouraging regional writers to collect and use local and regional material, and to preserve those dramatic incidents of the pioneer days which have given colour, variety, and flavour to life in the West.

Classes in radio writing were added in 1947. This marked the first and only time in the history of this University's academic life

The art class follows with deep concentration the work of J. W. G. MacDonald of Toronto.

Dr. Ernesta Vinci of the Royal Conservatory of Music, Toronto, takes a class of enthusiastic singers.

when guards had to be placed at the doors to prevent the public overcrowding the lectures. Courses in photography for the amateur and the professional were added in 1950, and following the established policy of the School to have the best, arrangements were made for Malak Karsh, whose pictures illustrate this article, to instruct.

Year by year, through five years of depression, and six years of war, an increasing number of students sought admission to the Banff School, until in the last five years a ceiling of 600 has been placed on registration. They come from every province in Canada, and an average of twenty states of the United States. To add variety, there is each year a sprinkling from Europe, South America, Hawaii, Australia, New Zealand and the Philippines. One year there were fifty Ethiopians. They represent all walks of life. Some are young and some are mature. Some want academic credits towards degrees in fine arts and education; others are going on to professional careers in radio, stage and screen. Others, again, and they are an important number, are taking the courses for their own recreation and pleasure, and return to their homes refreshed in mind and spirit.

As the physical facilities have grown, so have the demands for the School. It now operates the year round, first as the home of the School of Fine Arts, which runs for twelve weeks in the summer, instead of four. During the rest of the year it serves as an ideal centre

Rapt attention is given by the music class to their instructor, Bela Boszormanyi-Nagy.

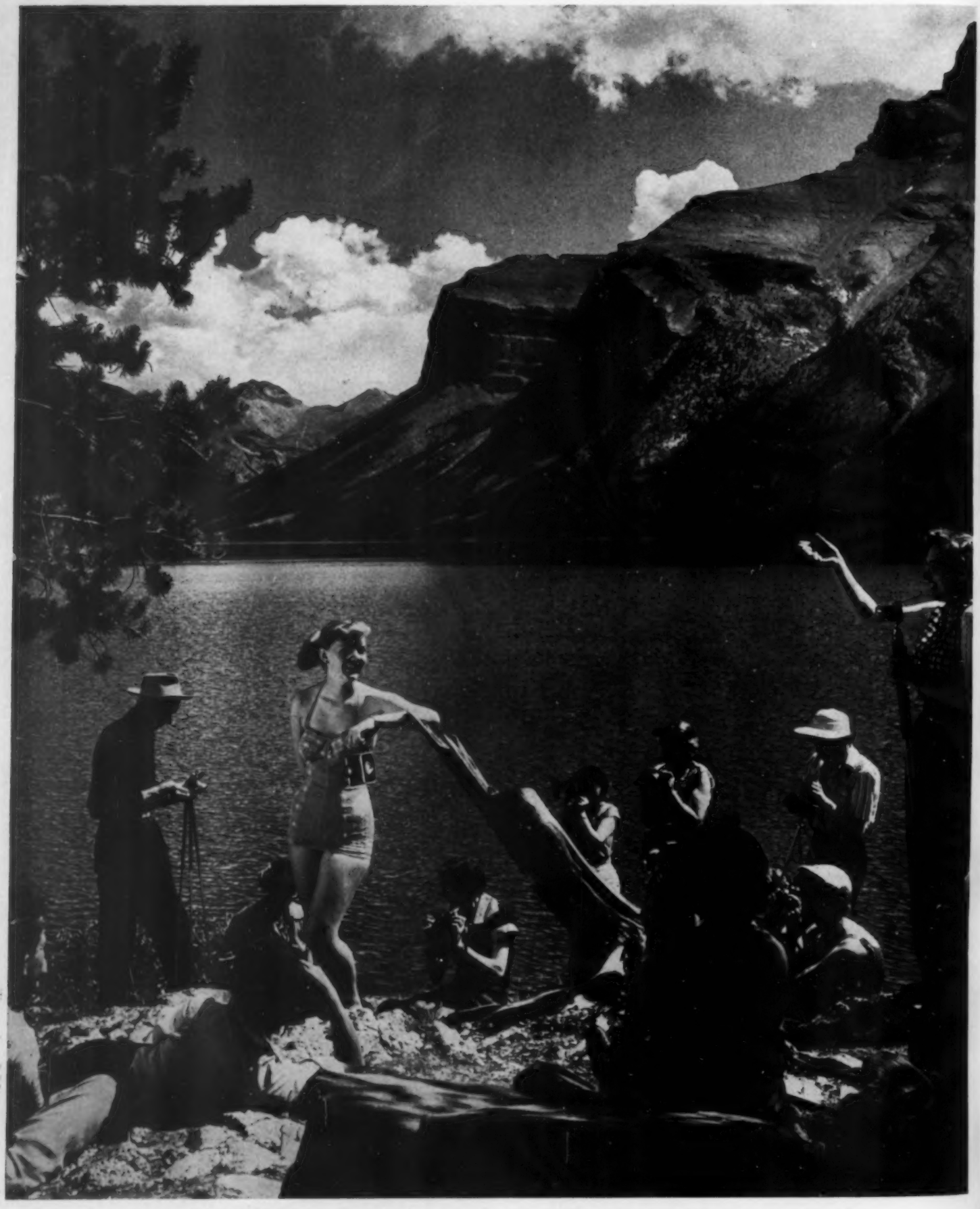
for continuing education for the University.

This year, over forty-five groups and 4,000 people will attend short courses, conferences and workshops in the School. In the last three years, the School has become the home of another important educational adventure: The Banff School of Advanced Management, sponsored by the four Western Universities, and dedicated to a program of executive training for leaders in the business world of the west. Each year, 70 executives of Canadian business firms are spending an intensive six weeks in training themselves for leadership in Canada's expanding economy. Thus the original concept of the School, as a place to train leaders who would, in turn, train others, is bearing fruit in a field far removed from the original "School in the Arts Related to the Theatre". Yet it is possible that the training the business men get, in an atmosphere and a setting originally designed for the fine arts, may lead to a better understanding of the importance and the interdependence of both in the community.

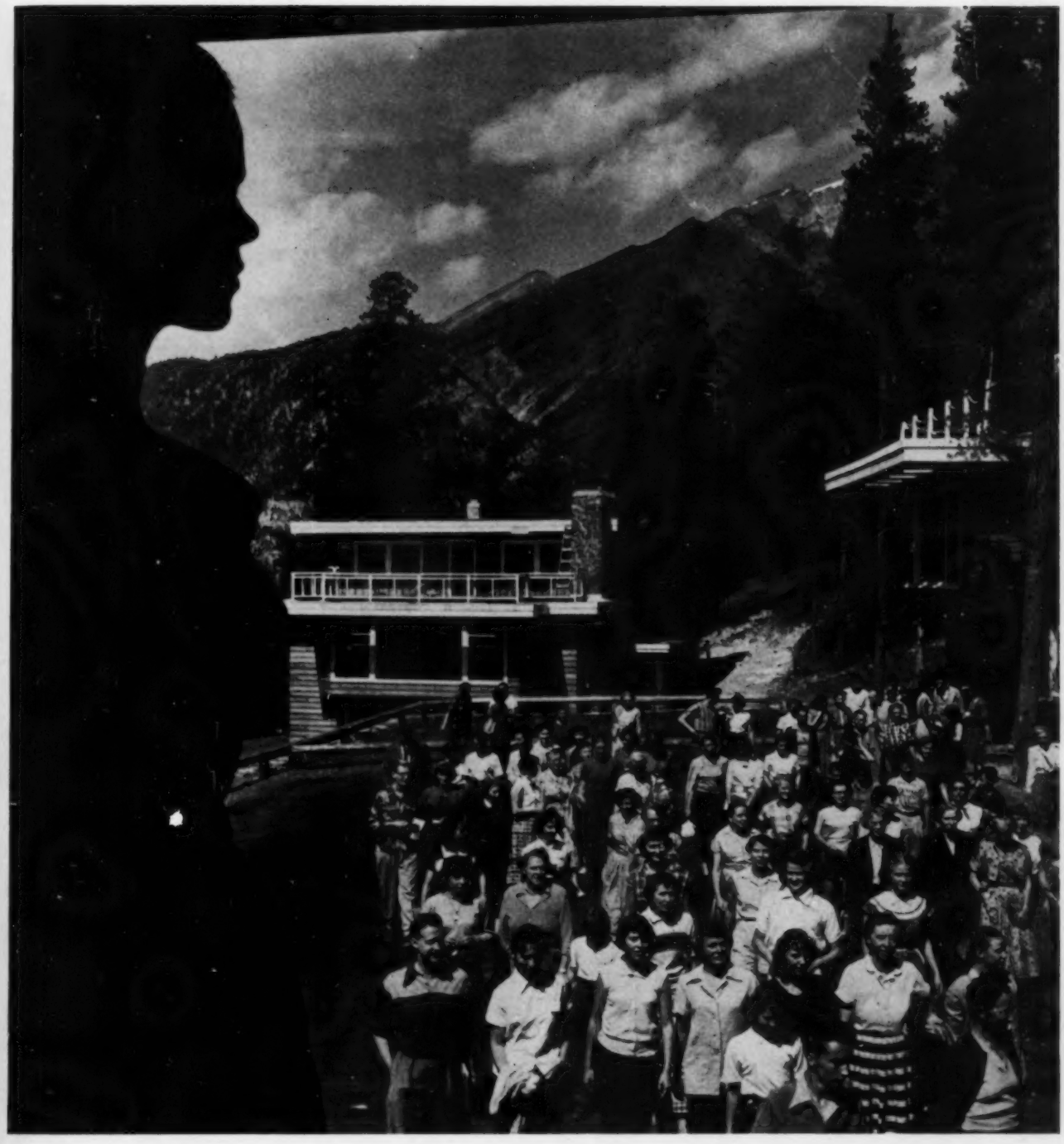
The Banff School has grown and prospered because it has always been closely attuned to the needs and desires of the people. It has also developed as a result of the practical application of a number of fundamental principles and concepts of adult education, which may be summed up as:

1. The best age for learning the art of living is after people have become adult and have some experience of life.
2. People respond to their environment and to natural beauty. The setting of the Banff School is magnificent, and artists and business men alike receive stimulus and inspiration from it.
3. The function of extension workers stated in its simplest terms is the responsibility for mobilizing the educational resources of a region and bringing them to bear in meeting people's needs.
4. We start from where we are using the resources that are available.
5. It is people and ideas that are important, and while fine buildings are desirable, much can be done with simple buildings in a natural setting, if the leadership is good.

Right:—Various courses: ceramics, taught by Elaine Joyce; the radio class given by Norman Corwin; and a student weaving.



The photography class, taught by Malak, has a wide choice of subjects, human and scenic, on which to practise.



The call to dinner sees students moving with one accord towards the dining room.

The building of the Banff School has involved the application of each of these principles and concepts. The School has grown because high standards and hard work have been stressed. We have used what we found available in the way of buildings and equipment, and we have mobilized artistic leadership from Europe and America. The combination of first-rate instructors and an inspiring setting has attracted good students. The past 21 years have been an exciting and rewarding adventure for all associated with the institution. We believe its role in the realm of ideas in the Canadian community can be just as creative and challenging as we have the vision, courage and determination to make it!

A small patient in Miller Bay Hospital, Prince Rupert, B.C.

Health for Indians and Eskimos

by PERCY E. MOORE

IT IS a far cry from a sickbed composed of a snow shelf in an igloo or a heap of blankets in a tent to the sanitary comfort of a modern hospital, but every year thousands of Canadian Indians and Eskimos make that staggering trip: a trip not merely of hundreds of miles, but often of thousands of years in development. For the 150,000 Indians and 9,500 Eskimos living in Canada vary from primitive types, only shortly removed from the stone age, to groups that are more or less fully integrated into modern society and industrial life.

The first white men to assume some responsibility for the health of these natives were Imperial army doctors who, in the early part of the 17th century, offered emergency medical service to the Indians. Not until 1905 did the Canadian government make medical services available to Indians within reach of transportation. In 1922 the first field nurse was appointed, and in 1927 the first full-time superintendent of medical services.

In 1953 the Indian Health Services of the Department of National Health and Welfare had positions for 93 medical officers, 11 dental surgeons, 2 eye ear nose throat specialists and 339 graduate nurses staffing 18 departmental hospitals, 33 nursing stations, 23 health units and 32 dispensaries in more than 100 places throughout Canada. In addition 600 general hospitals all over Canada are used when it is impractical to get the patient to a departmental hospital, and the Department has working arrangements with 1,200 doctors and 125 dentists for fee-for-service care.

This complicated organization, by which patients are brought to centres for care, and preventive treatment is brought to them, wherever they are, adds up to more than $16 million a year—a per capita expenditure of $100 for every Indian and Eskimo in the land.

Of course the main reason for this substantial expenditure is the fact that the Indians are scattered throughout the country on more than a thousand different locations

that have been reserved for them, while the Eskimos are distributed along more than 10,000 miles of Arctic coast and live a nomadic life. Another reason is that the tuberculosis case rate is still 15 to 20 times that of the white population, which means a heavy load of long-term care.

Last year more than 31,000 patients—nearly one in five of the native population—received some hospital care, running up a total of nearly a million and a half patient-days in hospital. These figures indicate that Indians and Eskimos are receiving hospital care on a comparable basis with the white population, of whom 1 in 7 entered hospital last year. But the cause of hospitalization shows quite a difference, for a much larger proportion of natives were hospitalized for treatment for tuberculosis. However, a vigorous program of case-finding, inoculation with BCG vaccine and the use of surgery and new drugs has spectacularly reduced the death rate from the "white scourge" from a figure of 700 per hundred thousand ten years ago to about 150 per hundred thousand in 1953.

Many of the hospitals have a public health division where one or more nurses carry out a field program combining treatment and health education. Such a program may be carried out by a nurse or doctor operating quite alone but using local hospital facilities.

In addition to the hospitals there are 33 nursing stations, mostly on Indian reservations. These stations contain from 4 to 13 beds, a number of bassinets and living quarters for the nurse and at least one assistant. An increasing

Nine little Indians, patients at Brandon Sanatorium, sing carols at the Christmas party and almost manage to look like little angels.

A departmental hospital at Moose Factory on James Bay. It serves a scattered population of about 5,000 living along more than 800 miles of coast. In this area also are three departmental health centres, at Port Harrison, Fort George and Rupert's House, and four mission hospitals at Moosonee, Albany, Otawapiskat and Fort George.

An Indian woman brings the "papoose" to a hospital in the far North. She is giving the X-ray technician the necessary information about the baby.

The R.C.A.F. co-operates with the Indian Health Services in flying Indian children south to the Charles Camsell Indian hospital in Edmonton for treatment. These girls are accompanied by Miss M. Hackett (left), public health nurse in the Yukon.

number of expectant mothers come to the nursing stations to have their babies.

Perhaps the most adventurous life is that lived by the public health nurse who operates a health centre. This is simply a residence, generally in a remote place, from which she carries out a program of visiting the sick, preaching health education, and getting in touch with a doctor by phone or radio if help is needed. These nurses travel by boat, horseback, snowmobile, snow-shoe and foot; their area may extend over hundreds of miles. They also hold pre-natal and well baby clinics. It is a rugged life, and only those who love their work can last at it.

And finally there are hundreds of volunteers in tiny posts all over the north who act as dispensers, distributing medical supplies and carrying on emergency first aid. Some of them are nurses; others are missionaries, teachers, Hudson's Bay factors and their wives and government officers; in short anyone with discretion and a sense of service who happens to live in some remote spot where there is no doctor or nurse. They advise the nearest departmental doctor when trouble arises, and more than a hundred of them conscientiously send in monthly reports.

Recently a training course was established at Charles Camsell Hospital in Edmonton to train R.C.M. Police constables assigned to Arctic duty in general knowledge of drugs, medicines and first aid.

And still there are nomadic Indians and Eskimos who are out of touch with even the tiniest community for most of the year. Every effort is made to reach them at least once a year, during the rare occasions when they do gather at a trading post, by a survey and treatment team. A doctor, a dentist and an X-ray operator form the basis of such a team; they notify the trading posts, R.C.M. Police posts and missionaries at Christmas that they will be arriving at Easter, and the natives gather at the appointed time. Or they plan to arrive at Indian gatherings at treaty time. They

Paulette Anerodluk is one of the first Eskimo girls to take the course for ward aides at St. Ann's Hospital, Fort Smith, N.W.T. She happens to be able to look after her own mother, Eva Kokiloka, ill with diabetes. The mother is tattooed in the old style on face and arms; the daughter already is making an excellent nurse's aide. Richard Harrington

A group of girls taking training as ward aides at St. Ann's Hospital, Fort Smith. In the front row are the first three Eskimos girls to take the course, and behind them are a German D.P. and three Indian girls. In addition to their practical work, they learn anatomy, physiology, ethics and hygiene. Richard Harrington

travel by car if possible; by plane or by boat, carrying 2,600 pounds of technical equipment, and prepared to cope with any emergency from frozen batteries to measles epidemics. Sometimes they take along an interpreter; one favorite is the legless Eskimo Tuk-Too, who is as proud of his artificial legs as he is of his knowledge of the X-ray machine.

The team tries to X-ray everybody; inoculates, vaccinates, repairs teeth, provides glasses and treats sickness. Always there are some natives who require hospitalization, many of them for several years. Yet such is the confidence these teams have inspired that there is seldom any difficulty in persuading the sick native to climb into a plane, say good-bye to friends and family, and set off for the great unknown "civilization" outside for an indefinite length of time.

When illness or accidents occur at other times of the year, mercy flights are undertaken often by the Royal Canadian Air Force. Where it has been impossible to land, medical supplies and instructions have been dropped by parachute and, in some instances, an Army or Air Force doctor or nurse has parachuted into a camp.

And what do these doctors and nurses find? Of course tuberculosis is still too common, in spite of the great decrease over the last few years. The need for health education, particularly in the field of infant nutrition, is highlighted by the fact that although the native birth rate is double the average for the whole

country, the infant death rate is about three times as high. Among Indians cancer of the cervix is found several times as frequently as in the rest of the country. The accident rate is high and resistance to certain diseases is low. For instance epidemics of measles or of influenza are infinitely more serious than they are among the white population, and cause many deaths mainly due to the development of pneumonia. Diseases of old age are rare, as the life expectancy of the native is not yet as high as that of the white population, particularly of those natives living close to nature in remote areas. The youth of the native patients, of whom more than half are under 20, and their lack of caution in observing reasonable convalescence often leads to complications following minor illnesses.

A few diseases which plague Indian trappers are practically unknown among the white population. Two of these are tularemia (rabbit fever) transmitted usually by ticks, and hydatid disease, passed from moose or caribou to dog to man.

To support the public health workers in their health education efforts, the Department of National Health and Welfare has developed some clear and colorful visual aids. These include a booklet on general hygiene, filmstrips on tuberculosis, safe water, infant feeding, infantile diarrhea and hydatid disease. Posters and calendars have been produced to be taken home as a reminder of the lesson of the filmstrip.

Both Indians and Eskimos receive family allowances either in money or, if they are nomadic people and only come to a trading post once or twice a year, in credit at the store. It is explained to them that family allowances are for their children and can only be received as long as the children are in school, if it is possible to send them. This has greatly increased school attendance, particularly in the residential schools.

Discretion has to be exercised in selecting the articles which may be paid out as family allowances. One Eskimo lost his livelihood when he wrecked his fishing boat, and it was considered advantageous to his children to provide him with another boat. Generally Eskimos are encouraged to spend their allowances on nutritious foods such as milk, tomatoes, pablum and so on.

Indians are eligible for old age pensions and old age assistance, and the main difficulty in administering this is determining age. Seventy years ago records were not very carefully kept.

Pensions for the blind are also available to blind Indians over 21.

One of the main aims of all the programs for the health and welfare of Canadian natives is to enable them to take their place as citizens on an equal basis with whites. Recently a broad scheme of rehabilitation of recovered tuberculosis patients has been developed with the result that an increasing number of former patients have learned skills which make them self-supporting. Many of them like to stay and work in the hospital where they lived as patients, and the Department of National Health and Welfare has on its strength today 295 Indians and Eskimos. Every year up to a thousand Indians trade their treaty rights for enfranchisement and become ordinary Canadian citizens, and in the last year or so a number of Eskimos have decided to remain "outside". As one of them said, with typical Eskimo humor, when asked if he would ever go back north to live, "There's nothing much wrong with civilization that I can see!"

An Eskimo mother and child rubbing noses as a gesture of affection.

Street-dancing goes on morning and evening in Calgary streets, square-dances complete with caller and fiddler.

The Calgary Stampede

by LYN HARRINGTON

Photographs by RICHARD HARRINGTON

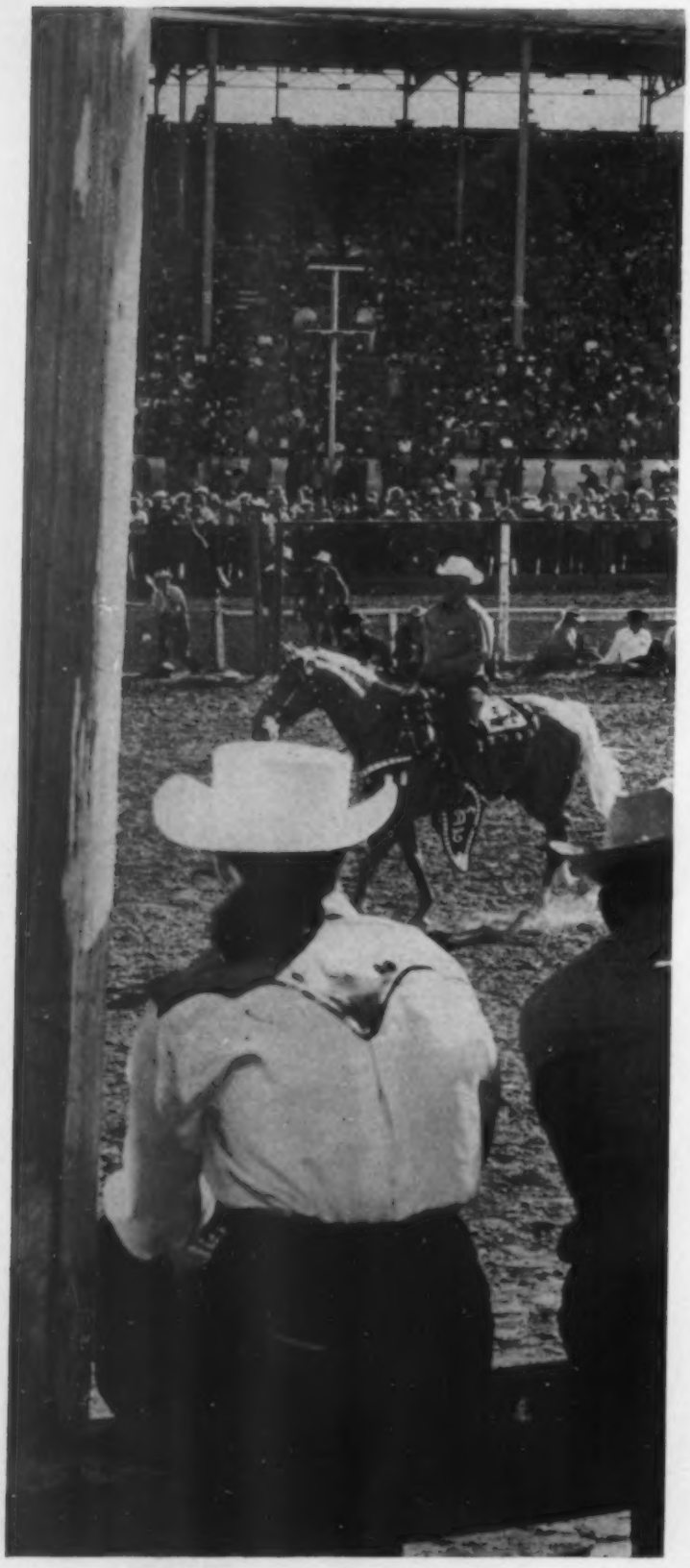
By 1912, it was clear that the days of the wide-open unfenced prairie were numbered in Alberta. That year a special demonstration of cowboy work and skill was arranged in Calgary as "a fitting finale to the glorious history of this justly celebrated range".

But far from being a farewell to cowboys and dogies, bucking horses and wild cows, Calgary's first Stampede opened a new era in cowboy sports. The rodeo has become an annual event —July 5th to 10th this year—with each year's attendance topping previous records.

The Stampede idea grew out of spontaneous contests amongst the cowhands themselves, and the events stemmed from the daily work of a cattle ranch. These tasks called for special dexterity with a rope, thorough knowledge of the job, co-operation of the cowpony, and split-second timing. They still do. Top riders from the rangelands of Canada and the United States risk life and limb for the valuable purses and trophies awarded.

Chuckwagons are stationed throughout downtown Calgary during Stampede Week, offering free flapjacks to the public.

Half a million dollars' worth of the finest animals in western Canada may be viewed in the livestock barns. This pampered Hereford gets a final grooming before the judging.



The correct name is the "Calgary Exhibition and Stampede", and the displays of livestock, agricultural machinery and household appliances form a showcase of western industry. But somehow the Exhibition pales beside the Stampede, "the greatest outdoor show on earth". A prize Hereford, knee-deep in fresh straw, laundered and marcelled and placid, doesn't kindle the same excitement as his wild-eyed cousin fresh from the coulees, snorting and tossing a rider into the dust.

The Exhibition and Stampede grounds cover sixty acres of Victoria Park in Calgary. The northwestern corner is reserved for the Indian village, where Blackfoot, Sarcee and Stoney Indians set up huge gaily-painted tipis. Ponies are tied to nearby hitching rails. Camp dogs snooze in the shade of prairie wagons, and children play, or pose for visitors' cameras in fur and feathers.

Stampede Week opens with a colourful parade of pioneers, officials on palomino horses, dude ranch floats, Mounted Police in scarlet uniforms, Indians in beads and buckskin, high-stepping drum majorettes and school bands, to mention but a few. The parade takes all Monday morning.

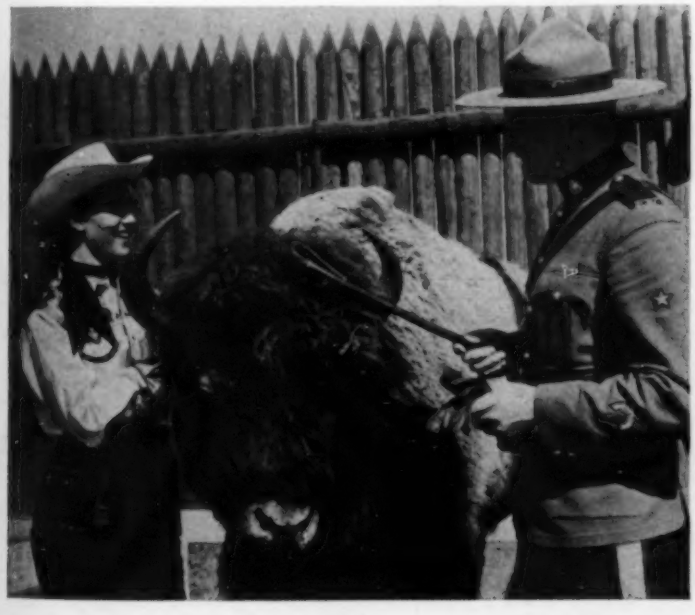
Each afternoon, the events in the arena are varied with horse-racing, with trick and fancy riding, and clown antics. The centre-field events include riding bucking horses, with and without saddle, calf-roping, catching and saddling wild horses, decorating steers, boys' wild steer riding, and wild cow milking. It is a program crowded with tension and hilarity.

The evening program begins with the chuck-wagon races. These covered wagons represent the cook-wagons that follow the roundups on very large ranches, and serve as home for the cook. Four wagons, each with driver and four outriders and four matched thoroughbred horses, compete in every heat of the evening event. These races are found only in Alberta stampedes, and the dust and excitement rise to a dizzying pitch. Immediately after the races comes the grandstand show of vaudeville

Infield and grandstand from the judge's viewpoint. Arena Director Dick Cosgrove steps past on his palomino horse.

Indian youngster in feathered finery poses for the tourists' cameras, sitting perched on a saddle.

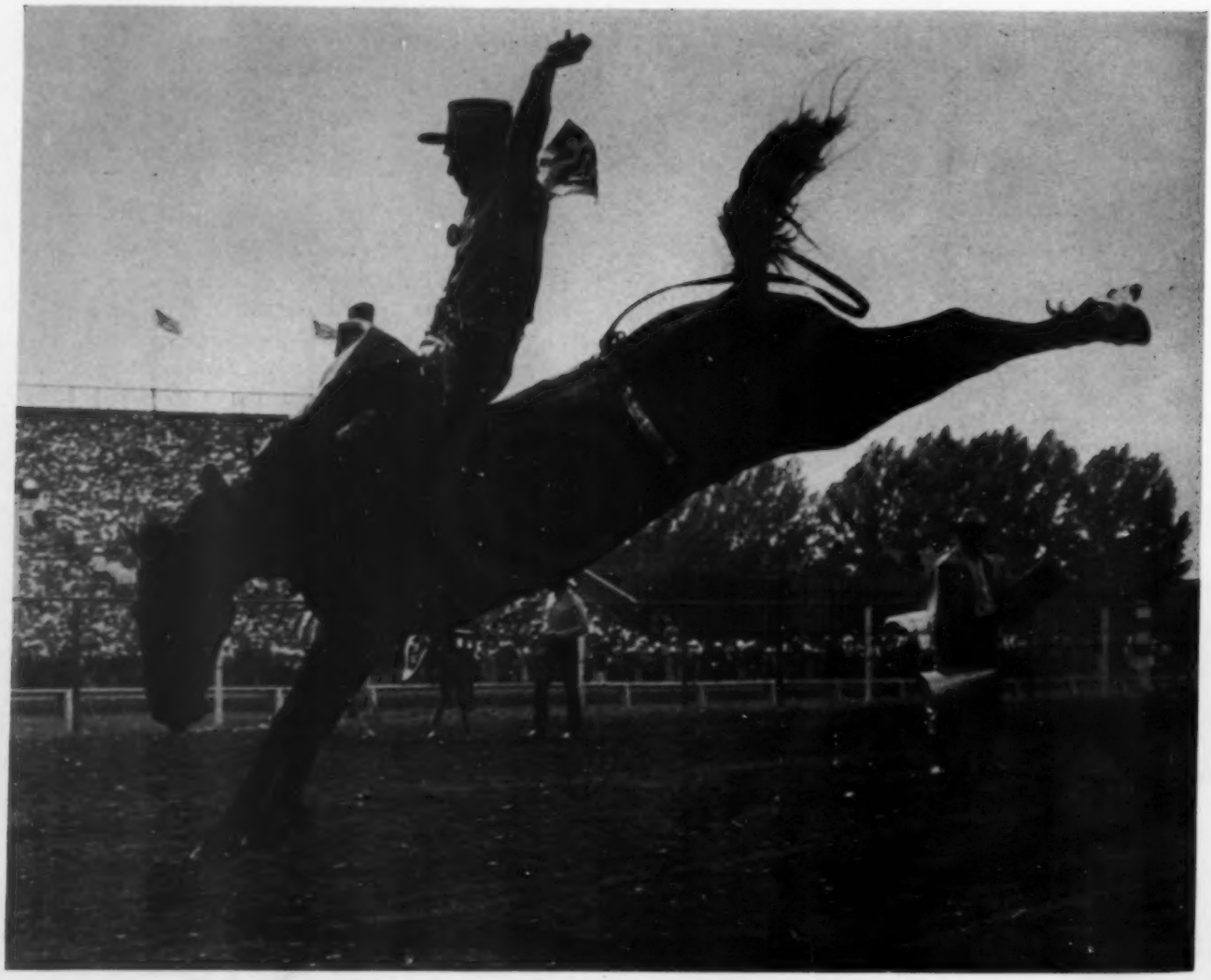
Inside the stockade is an old log building which belonged to the Northwest Mounted Police in the early days of the west. A Royal Canadian Mounted Policeman describes the career of the mounted bison, representing hordes of buffalo the West once knew.



and fireworks. Prizes are awarded to contest winners on Saturday night.

To keep this huge exhibition running smoothly calls for a full-time general manager and board of directors, and months of preliminary effort. During Stampede Week, the small permanent staff is increased by hundreds of temporary employees.

The success of the Calgary Exhibition and Stampede is due not only to the efforts of these people, but also to the active participation of Calgary citizens. Clerks and waitresses, and even the street-cleaners, don western garb. Their colourful silk neckerchiefs, wide hats and snug-fitting clothing plus the informal friendliness of the Foothills City contribute immensely to the gaiety and animation of Stampede Week.



Cowboy drops his rope over a calf, in the calf-roping event. Numbered contestants for other events appear in foreground, with the chutes at extreme right.

Top left:—
Wild horse riding calls for a 3-man team to catch the horse, saddle it, and race for the end-field. These are horses that have rarely, if ever, been ridden.

Left:—
This bareback rider isn't "pulling leather", you can see from his hand in the air. His spurs are raking well forward on the horse's shoulders. He has to remain on the horse 8 seconds.

Right:—
The wild steer is doing his best to unload the Indian lad who is sticking tighter than a bur.

The chuckwagon races are held every evening. Here the wagons trace a Figure-8 around two barrels at the start of the race. The outriders load on stove and tent, then mount and race around ½ mile of track.

Four chuckwagons round a curve of the race-track in one heat of the evening. Dust and excitement reach a high pitch.

Battlefield House, the old Gage farmhouse at Stoney Creek, seen from the monument.

Battlefield House at Stoney Creek

by MAVIS HARTMAN

By the village of Stoney Creek not far from Hamilton, Ontario, lies the site of a battle that changed history. Things had been going badly for the British in 1812. General Brock had been killed, York had been taken and burnt, Lake Ontario was controlled by American vessels, and in the spring of 1813 a strong force of American troops crossed the Niagara River and was pushing towards Hamilton. The British General Vincent had made a series of strategic withdrawals and was encamped at Burlington Heights. The Americans, under the command of Generals Chandler and Winder, reached Stoney Creek at the Western end of Lake Ontario on 5th June and camped on the Gage farm. The officers took the farmhouse as their headquarters, locking the Gage family in the cellar. The house was large and comfortable and the situation on the hillside commanded a view of the country for miles around and down to Lake Ontario. All the settlers in the vicinity were taken prisoner to prevent information reaching the British. However, a teen-age lad named Billy Green managed to escape up the mountain and made his way along the escarpment to Burlington Heights where he gave the news to General Vincent.

In the dead of night, the British descended upon the American headquarters, and, assisted by the war whoops of their Indian allies which gave the impression of a formidable force, threw them into confusion and routed them completely. With this encounter, the tide of battle turned, the invaders were driven as far as 40-mile Creek that night, and eventually back across the Niagara frontier.

One end of the living room at Battlefield House.

The dining room at Battlefield House. Most of the furniture belonged to the original owners, though items of the period 1790 to 1850 have been added from time to time. Portraits of members of the Gage family adorn the walls.

It was eighty-six years later that the site of the battlefield and the Gage farmhouse were purchased by the Women's Wentworth Historical Society and made into a historic shrine. With government assistance, a monument was built on the hill overlooking the site. The house was repaired and renovated and furnished with antiques, most of which had been the property of the Gage family. It was opened by the Marchioness of Aberdeen on October 21, 1899. The park surrounding it is always open to the public and, for a nominal fee, visitors may see the interesting interior of the house and the museum.

Many collectors' items have been added from time to time, including additional furniture of the period 1790-1850 and objects of historic interest connected with the War of 1812. There is a photostatic copy of a drawing of the battlefield, the original of which was found in the office of the Adjutant General of the United States Army. It was attached to the report of Major-General Morgan Lewis and was dated June 1813. The original Crown Grant of land made to Mary Jones Gage by King George III is framed and hanging in the front hall.

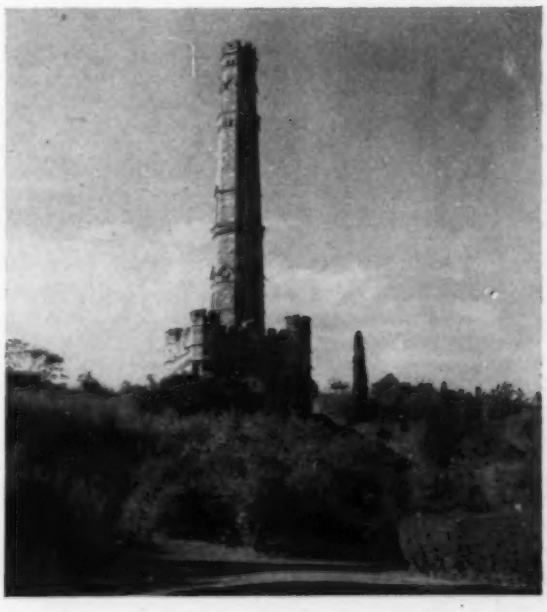
One of the relics to be seen in the house is the sword of Joseph Brant, the scholarly Mohawk chief who gave active support to the British. It is single-edged, inlaid on the blade with gilt leaves and flowers; on one side is the Royal Arms, and on the other, the Crown and Royal Cipher G.R. (George III) and the figure of a British Infantry Officer of the eighteenth century. This sword was presented to Joseph Brant on one of his two visits to England in 1776 or 1785. There are also such period pieces as horns for powder and shot, and a brass powder flask, the top of which has a measure adjustable for three different amounts of powder. It is ornamented on both sides with a still life design of game in high relief.

A travelling artist painted oil portraits of several members of the Gage family, probably about 1851, and these hang on the walls of Battlefield House. There are patchwork quilts and knitted bedspreads, spinning wheels, carders for teazing wool, flax wheels, a weaver's reed, tin candle lanterns, four-poster beds with rope springs, chairs with splint seats made by the Indians, goffering irons for crimping ruffles.

Books and pictures owned by the pioneers were mostly of a religious nature, but the arts were not neglected, for there is a copy of a concert program given in the Hamilton Town Hall in 1842. There is a hundred-year-old edition of Milton's Works, the Methodist Magazine for the year 1803, an anonymous autobiography of a Methodist circuit rider who was born in Maryland in 1751, and two very old Bibles, one printed in 1732.

Specimens of the culinary equipment of the period include an iron spit, which when wound would turn for two hours, an iron grid with a shallow basting trough, a steel meat roaster with three double prongs on an adjustable shield to hold meat to the fire, a pair of sugar nippers on a wooden stand for clipping loaf sugar, a copper tea urn with ivory fittings, and a variety of old china, some in the Willow pattern, some in a pattern called Statue, and some in the pattern Moses in the Bulrushes.

These and many other interesting items have been collected in Battlefield House. Each year something is added or some needed repairs made. The park is a favourite spot for picnics, the house for meetings of women's clubs and small groups. Its guest book contains names from all over the civilized world, and it serves not only as a tourist attraction but also as an object lesson in history for the school children who are taken to visit it every year. For there the past still lives.



The monument at Stoney Creek that overlooks the site of the 1813 battle.

Land Use in the Arctic* – Part I

by A. E. PORSILD

Introduction

THAT "all flesh is grass" is as true in the Arctic as it is in any other part of the world. Everywhere does animal life, whether on land or in the sea, in the final analysis subsist on organic matter that in one way or another has been produced by plants from inorganic matter. In the Polar regions, however, all biological processes of growth and metabolism are retarded and reduced in intensity by the low temperatures and, as we approach the Pole, by the decreasing length of the growth period. Therefore, there is a very definite relation between productivity of the land and the distance from the equator.

In terms of abundance of organisms the most productive and fertile parts of the Polar regions undoubtedly are to be found in the sea; but the astounding if local abundance, near the southern edge of the Polar ice pack, of vegetable and animal plankton that serve as food for larger arctic sea-life of economic importance, is made possible only by inorganic substances which have been carried north into the Polar seas by ocean currents from non-arctic regions.

Arctic land surfaces, on the other hand, in terms of productivity, are everywhere among the lowest in the world. Thus, from the absolute zero of productivity of land surfaces covered by perennial snow — or icefields, to the relatively fertile flood plains occasionally found near the southern borders of the arctic zone (see map), the annual yield per unit of surface of arctic land is low.

Arctic vegetation everywhere is affected by the severe climate under which plants grow. The shortness of the growing season — although to some extent compensated by long daylight — and the deficiency of soil and precipitation, have a more profound effect on plant growth than has the relative lowness of the actual air temperatures as recorded by the meteorologist, for, due to insolation, the actual microclimate in which the arctic plants live, — i.e., the temperature of the surface soil and the air or water surrounding the growing plant, — may on sunny days, and especially on south-facing slopes, be as much as twenty to thirty degrees F. higher than that of the air.

Owing to poor drainage and aeration caused by the presence of permafrost or bedrock closely below the surface — but particularly due to the low temperatures — arctic and subarctic soils are generally acid and frequently also waterlogged. For this reason, organic decay by bacterial action or by other soil organisms is extremely slow and the sources of available nitrogen, as well as of other salts needed by the plant are almost everywhere deficient. Abundant proof of this is found in the lush and rank growth with which many arctic plants respond in such places as bird cliffs, near animal burrows or on refuse heaps near human habitations, where nitrogen and phosphates are plentiful.

Direct use of arctic plants by Man

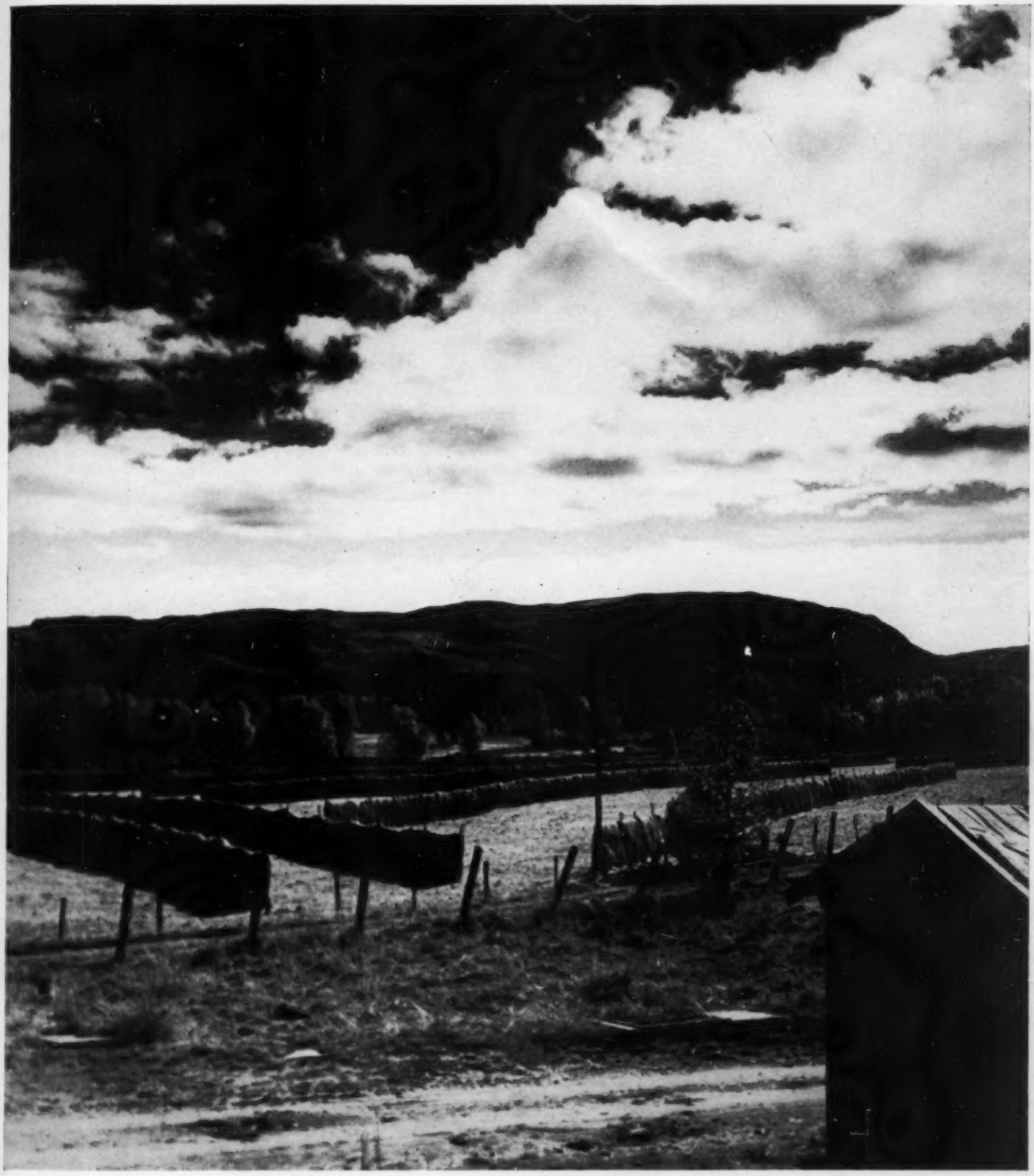
Everywhere in the Arctic, plant life plays a comparatively minor role in the economy of Man. None of the woody species of plants is of a size sufficiently large for constructional use, and, before the advent of the white man, the aboriginal inhabitants of the Arctic obtained such wood as they needed for the construction of shelters and the manufacture of implements either from drift wood, or by forays to the fringes of the forest to the south.

Heather and berry bushes, willow, alder and ground birch, together with lichen plants, moss and peat are all used to some extent for cooking purposes. Of greatest universal importance are, perhaps, the crowberry bush (*Empetrum*) and the white arctic heather (*Cassiope tetragona*), both common or even ubiquitous in many parts of the Arctic. Nearly all the larger lichens, especially species of *Alectoria*, *Cladonia* and *Cetraria* are highly inflammable when dry and may be used as fuel. Raw peat, particularly heath turf, but also partly decomposed sphagnum moss which is found in bogs nearly everywhere in the Arctic may be burned, and in Greenland provides the bulk of the fuel used by the native population.

The twigs of the larger willows, dwarf birch and alder are used by the peoples of the Arctic as floor covering for tents or snow houses or even in more or less permanent dwellings and are made into matting used under the sleeping skins.

Photographs by the author except where otherwise credited.

*This paper was originally written for *Encyclopedia Arctica* and is published now with Dr. Stefansson's permission.



Hay, dried on long wire lines, is the prime agricultural crop north of the Arctic Circle at Alta, Norway. Adelaide Leitch

The bark of several species of willow, and particularly the bark of alder (*Alnus*), is employed for tanning and dyeing purposes. A number of different kinds of grasses and sedges find various uses. Thus in Greenland, lyme-grass (*Elymus*) is widely used for insoles in seal-skin boots, and both there and elsewhere for basket-weaving, while blue-joint grass

Above:—Windswept stony "barren grounds" between Great Bear Lake and the arctic coast support only a sparse growth of arctic heather. A few stunted spruces wage a losing battle against northern blizzards. Below:—Dense meadow of "slough" grass near Fort Smith. Quantities of wild hay can be harvested here.

(*Calamagrostis* spp.) is used for insoles, basket-weaving and for matting under bedding.

Finely carded leaves of the sedge *Carex Goodenowii* (and allied species) serve the Lapps and various Siberian peoples as lining for winter boots and mittens.

Owing to its absorbent quality, sphagnum moss is widely used as a wick for seal-oil lamps, as a lining for infants' cradles, and for "diapers". The long, silky bristles of several species of arctic cotton grass (*Eriophorum* spp.) also provide wicks for Eskimo seal-oil lamps.

Several lichens find a limited use for dyeing purposes. *Ochrolechia* (*Lecanora*) *tartarea* produces a reddish colour, and *Parmelia omphalodes*, P. *saxatilis*, *Lobaria pulmonaria* and *Cetraria islandica* yield yellowish-brown dyes.

Only a small number of arctic plants are regularly used for food by native and white inhabitants (Porsild, 1953). Of greatest potential food value, perhaps, are the lichens, although, strangely enough, they are not known ever to have been used by any of the aboriginal tribes inhabiting either the New or the Old World. Several species of foliose black, grey or green lichens in the genera *Umbilicaria* and

Gyrophora — the "tripe de roche" of the Canadian voyageurs — grow on acid rocks throughout the Polar regions. Together with a few of the fruticose species — chiefly Iceland moss (*Cetraria islandica*) and reindeer moss (*Cladonia rangiferina* and *Cl. alpestris*) they have been used regularly by arctic travellers, and, on more than one occasion have saved the lives of field parties. In times of famine, Iceland and reindeer moss were used in arctic Europe, to eke out the supply of bread flour: in the past, too, they have been employed to a limited extent in the manufacture of alcohol.

Numerous species of edible fleshy fungi (mushrooms) are found especially in the southern parts of the Arctic but, like the lichens, they are not used as food by the natives. However, several species of green and red marine algae (dulce or sea-lettuce) are eaten by the Eskimos of Baffin Island and Greenland, as well as by several tribes inhabiting the sea coasts of Asia.

If arctic vegetation has little direct significance for man, indirectly, nevertheless it is of the greatest importance because nearly all sedges, grasses and fruticose lichens, besides other herbaceous plants and dwarf shrubs, provide food for grazing and browsing animals. The seeds, bulbils, winter buds and roots of a host of arctic plants are eaten by birds and by small rodents, and these in turn constitute the food of fur-bearing mammals. Likewise, the comparatively rich marine plant life indirectly furnishes food for the sea mammals and fish that are so important in the economy of arctic peoples. The role of plant life in the balance of Nature, however, is beyond the scope of the present article, which deals only with the direct use made by man of arctic plants, cultivated or wild.

Gardening and agriculture in the Arctic

In North America, certain hardy agricultural crops may be grown in favourable places north almost to the limit of trees but, at least at present, owing to the high cost of imported fertilizer and of labour, coupled with limited markets, the growing of such crops is economical only on a small scale and for personal and local use.

North of the tree line, in some parts of the Arctic north to latitude 70° or even beyond, hardy vegetables such as radishes, carrots, lettuce, kale, spinach, and rhubarb may be grown under glass on a limited scale for local consumption. But in many parts of the Arctic, soil is generally so scarce that, even for small-scale arctic gardens, it must be brought from afar. At Ivigtut in South Greenland, soil for the modest garden development in the cryolite mining town has been brought in ships from Denmark.

Although, the development of suitable soils, even for a modest garden, is costly and laborious everywhere in the Arctic, it is, of course, the low summer temperature which in the final

An Eskimo woman carries home a load of willow brush to keep her small stove alight.
Richard Harrington

Above:—Greenland garden at Jacobshavn, 69.5° N., where excellent lettuces grow.

Below:—Cabbages flourish in a garden at Aklavik, Canada's largest arctic town.

Dept. of Northern Affairs

analysis determines the northern limit of all agricultural and horticultural endeavour. Even the Russians who, during the last 25 years, have devoted much effort and manpower toward making the Soviet Arctic self-supporting in food stuffs, have reached the conclusion that agricultural endeavour beyond the limit of forest must of necessity be limited to grazing and to the harvesting of native wild hay, browse or lichens.

Plants and animal husbandry

In southwestern Greenland the heroic medieval Norse colonization was based on animal husbandry, and cattle, sheep, goats and horses were maintained there for several centuries. But the Norse economy remained marginal and succeeded only when liberally supplemented by fishing and hunting. Nor was the economy self-sufficient, and the colonies declined and finally perished when communications with the motherland ceased.

In modern times sheep farming has been reintroduced in the parts of Greenland formerly settled by the Norse. The industry, which is now being developed by Greenlanders — the modern descendants of Greenland Eskimo — is still in its infancy. Like the Norse husbandry that preceded it, it is decidedly marginal, and it remains to be seen if it can survive, without government support, the vicissitudes of an unfavourable climate and topography combined with a tenuous and precarious economy.

In various parts of the Arctic, domesticated grazing animals such as horses, goats, sheep and cattle thus have been, or are being maintained but only in small and insignificant numbers. Nevertheless, there is one animal — the reindeer — which is being successfully maintained there on a large scale. What is more important still, it is in its habits a truly Arctic animal, and the only one around which the economy and culture of a large number of arctic and subarctic peoples have been able to evolve, and persist throughout the centuries.

History of reindeer grazing

Whereas domesticated reindeer were introduced into North America in comparatively recent times, and into Canada only a few years ago, the breeding and grazing of reindeer is an industry of long standing in the arctic and subarctic parts of the Old World. Thus, it is known from old Chinese manuscripts (Laufer, 1917) that as early as A.D. 499, reindeer were being

A flock of sheep in a Greenland town.

Because there are no roads in Greenland, sheep farmers bring their sheep to market in boats.
Jette Bang

employed somewhere in Asia as draught animals and as beasts of burden, and that reindeer milk too was being used extensively. This is confirmed by the recent discovery of rock paintings in caves on the upper Yenisei and its tributaries, some of which show reindeer drawing sledges or mounted by men; they are believed to date back to the beginning of the Christian era (Tallgren, 1933; Mirov, 1945). In 1945, in the museum of Yakutsk, the writer saw similar paintings, said to have been copied from the walls of caves on the upper Lena; they were estimated to be 3000 years old, and, depicted what undoubtedly were reindeer rather than caribou. According to Mirov (l.c.) Sosnovsky (1933) has reported neolithic burials on the upper Lena, containing bones and harness accessories of domesticated reindeer.

In Europe, the earliest historical accounts of domesticated reindeer come from northern Scandinavia, whence reports of tame reindeer reached the court of King Alfred, about A.D. 890 (Laufer, 1917). Although, as yet, the exact place of origin of the reindeer culture is not definitely known, it appears, then, that it may have been somewhere in southern Siberia, east

Siberian Samoyeds travelling with reindeer teams. Note the long pole used to guide the reindeer that are hitched abreast.

K. Donner

of Lake Baikal and, that, in pre-historic times, it spread from there westward to arctic Europe, and northeastward to the Asiatic shores of the Bering Sea, whence, in 1891, the first reindeer were brought to North America.

Reindeer, like the wild caribou from which they evolved, while preeminently an arctic animal, is not limited to the arctic tundra, for the earliest known records come from forested areas deep in Siberia and in modern times there are reindeer nomads whose herds never leave the forest.

The breeding and grazing of reindeer is thus an old and well established industry around which a number of distinct nomadic cultures have evolved. It is still an important industry which is practised by nearly all aboriginal tribes of arctic Europe and Asia. According to Mirov (l.c.) the following peoples are now, or were in the recent past, engaged in the industry:

Uralo-Altaic Group:

A. Finno-Ugrian: (1) Lapp (2) Karelian (3) Zyrian (4) Ostyak (5) Vogul.

B. Tungus: (1) Tungus proper (2) Lamut (3) Oroki and other small tribes.

C. Samoyed.

D. Turko-Tartar: Yakut.

E. Turkisized Samoyed-Yeniseian of southern Siberia: (1) Irkutsk Soyot (2) Uriankhai Soyot (3) Karagas (4) Kamasin.

Paleo-Asiatic Group:

(1) Chukchi (2) Koryak (3) Yukaghir (4) Chuvan (5) Giliak and (6) Yenisei Ostyak.

Herding practices and the use of reindeer differ materially among the peoples who are engaged in the reindeer industry. Its highest development has probably been attained in the Scandinavian peninsula by the Lapps who maintain their herds under close and constant control, employ dogs for herding, use reindeer as draught animals and as beasts of burden, and who make extensive use of reindeer milk. Opposed to this are the more relaxed herding methods employed by nomads of the Siberian tundra, including Samoyeds, Zyrians, Ostyaks, Voguls, and also the Chukchi and Koryaks. These people travel in both winter and summer in sledges drawn by reindeer, but do not milk the animals. The Tungus, Karagas and Soyot of the Siberian taiga maintain small and closely tended herds, practise milking, and use reindeer as draught animals and as beasts of burden; only the Tungus have developed a reindeer that is large and strong enough to support the weight of a man, and for this reason they alone ride reindeer. The use of dogs for herding reindeer, apparently, is not practised east of the Yenisei River.

Only in North America, where the industry developed under Government control and is still largely in its infancy, are Eskimo, and in a few instances white men, engaged in reindeer herding. The future of this

Government-sponsored venture is still very uncertain and rather closely tied up with the economic and educational development of the Eskimo for, as their educational and economic standard improves, reindeer herding to them becomes less and less attractive. In this connection it is of interest to note that more than fifty years ago, Hahn (1896), who probably had not then heard of the experimental introduction of reindeer into Alaska, expressed the belief that the economic importance of this animal had by and large been overestimated as demonstrated by the fact that the industry was practised only by aboriginal tribes and that, even in regions where the reindeer was of considerable importance in the local economy, people of European culture and descent either thought the industry unprofitable or lacked themselves the necessary patience and inclination for its development. The same idea was expressed by Jackson (1893) who wrote: "The ordinary white man is unwilling to undergo the drudgery of herding in the rigorous climate, and unwilling to work for the small compensation that is paid for such services." Jackson, however, visualized economic potentialities for the industry, for he goes on to say: "With the increase of domesticated reindeer in Alaska, it will become possible for white men to own large herds; but the men that will do the herding and teaming will always be Eskimo and Lapp." In Alaska this actually soon came to pass as reported by Palmer (1926): "From the original stock of 1,280 animals imported from Siberia over the period of ten years up to 1902, the reindeer in Alaska have increased to about 350,000 head, distributed in 110 herds, all but 6 of which are along the coasts of Bering Sea and the Arctic Ocean . . . In addition to the numbers in the present herds, it is estimated that about 125,000 have been killed for food and clothing."

Reindeer were introduced into Alaska solely for the benefit of the Eskimo, and for more than twenty years the industry developed as intended, prospering beyond all expectations. In 1914, commercial exploitation began under white ownership, with disastrous results to the native interest and, eventually, owing to marketing difficulties, to commercial interests also. According to Palmer (l.c.) more than 1,875,000 pounds of reindeer meat was shipped from Alaska during the period from 1918 to 1925, with approximately 1,000,000 pounds shipped in 1924 and 1925 alone. Nevertheless, the high cost of shipping, in view of the low prices obtained in the American market, made large scale operation unprofitable. Following a period of chaotic decline, the United States Government in 1939 expropriated all reindeer owned by whites and, at the same time, prohibited ownership of reindeer by whites. Since then there has been a slow recovery but, owing to the rapidly changing economic and social status of Eskimo in Alaska, few natives are now attracted by the industry (Lantis, 1950).

In North America the methods of herd management that were in vogue among the Chukchi and Koryak owners of the original herds, have been modified and modernized partly by the

Finnish Skolt Laps start from their winter camp on a shopping expedition to the Arctic Coast.

K. Nickul

Reindeer round-up in Finland.
E. Blomberg, courtesy Finnish Tourist Assoc.

introduction of Lapp methods, but still more by the adaptation to the special requirements of reindeer of modern American livestock methods as practised in western sheep and cattle ranching. In neither Alaska nor Canada are reindeer milked, and very limited use is made of them as draught animals. Modern selective breeding, modern corrals and modern range utilization is practised. Everywhere the trend has been toward permanent settlements and absentee ownership rather than the maintenance of the nomadic existence inherent in primitive reindeer culture. The nomadic regime by which the reindeer owner and his entire household followed the herd during its biannual migration between summer and winter ranges, obtaining meanwhile practically all food and clothing from the herd, did not prove compatible with the American way of life.

Reindeer Grazing

The food habits of the reindeer and caribou are essentially the same; for both animals it is natural to perform seasonal migrations which follow a definite pattern and route. It is uncertain, however, how far these migrations are dictated by a search for food, and how far they are prompted by an urge to escape the insect pests that each summer torment man and beast alike on the subarctic tundra and taiga. Seasonal migrations are not undertaken by certain species of North American woodland caribou, by the barren ground caribou of Greenland, or by the caribou that inhabit the northernmost islands of the Canadian Arctic Archipelago; nor are they practised by the reindeer of the European and Asiatic taiga. Regular migrations, on the other hand, are practised by all reindeer inhabiting the tundra areas, and also by the barren ground caribou of the North American mainland.

The common belief that reindeer live exclusively on "moss" is erroneous. On the contrary, reindeer and caribou both are rather catholic in their choice of food, and like most other members of the deer family, are grazing and browsing animals. Another misconception is that the reindeer "moss" or lichen is absolutely indispensable for reindeer because it possesses certain specific nutritive qualities. The only reason why lichens are so important to reindeer is that they occur very abundantly in certain habitats, and are there readily available even under moderately deep snow. Without this ready source of food, large herds of reindeer could not be successfully maintained throughout the winter anywhere in arctic or subarctic regions. Without lichens, there could be no reindeer industry.

Actually the nutritive qualities of the lichen plants are below those of most other forage plants palatable to reindeer; thus, the protein content of air-dried lichens (*Cladonia* spp.) is only about one third that of native, air-dried and summer-cut hay; the fat content is about the same and only the starch or digestible carbohydrate content of the lichen is slightly higher. The great and all important difference is that the nutritive value of the lichen plant remains unimpaired throughout the winter, whereas that of winter-killed grasses, sedges and forbs is negligible. For these reasons, lichens are unimportant on the summer range but, during 8 or 9 months of the year, form the bulk of the forage available and eaten by reindeer. Therefore, the practical reindeer man, or the field botanist engaged in a study of potential reindeer pasture, must look for winter range having abundant lichen cover which will be available to reindeer throughout the winter. Likewise, on grazing land already occupied by reindeer, it is the winter range that must be conserved and carefully protected against overgrazing or needless destruction by trampling reindeer herds, and against destruction by fire. The summer range is expendable and will renew itself each summer.

Although the food habits of reindeer and caribou are much the same, it does not follow, however, that domesticated reindeer will thrive in country that will support caribou. While caribou may roam the length and breadth of the country in search of their food, the reindeer, in order to stay domesticated, must remain, at least to some extent, under the constant control and supervision of its owner, for only thus can it remain useful to him. For this reason, reindeer can be successfully maintained only in country sufficiently productive to permit the slow and leisurely grazing of large herds during both summer and winter. It is of equal importance that the distance between the summer and the winter range should not be too great to permit the leisurely movement of the herd twice a year, with a resting period allowed in the spring during fawning, and in the autumn during the rutting season. To prevent the deer from straying on the range, especially in winter, and to protect them from wolf predation, the herders must walk around the herd each day. The available lichen cover, therefore, must be such as to permit the herd to move slowly across the winter range or to remain within a fairly limited area for several days, or even weeks. In order that the range may not become unduly depleted, the deer man must adopt a rotation grazing system, selecting in advance a range where conditions are suitable for his deer during each particular season.

The winter range

Although reindeer and caribou are wonderfully adapted to withstand extreme low temperatures and high winds, unfavourable climatic conditions, nevertheless affect their general health and well-being no less than the condition and availability of the range. When in good condition, reindeer can stand prolonged periods of extreme cold with impunity, but only if well fed and when some shelter is provided against wind.

In some parts of the Arctic, where winter ice does not normally cover the sea, or where the shore ice does not extend far out, rain may occur during the winter and cause serious crusting of the snow. When this happens, reindeer herds may suffer severe losses through starvation, when the animals are unable to dig through the hard, icy crust. Such conditions, however, rarely extend far inland.

The average annual precipitation is low everywhere in the Arctic, but especially in the continental parts, where it is generally less than 7 inches. The winter snowfall, therefore, is light, and under ordinary conditions the depth of snow on the coastal tundra does not seriously affect winter grazing, especially because the frequent winter gales, to which the area is exposed, sweep the snow off the tundra or pack it into drifts that fill the depressions. At some distance from the exposed sea-coast, the edge of the forest, open muskeg-filled depressions, lake basins and mountain valleys, afford protection from the prevailing wind and freedom from drifting. In such places the snow, therefore, remains soft. On comparatively flat or level ground it seldom exceeds 12 to 18 inches in depth, and only in depressions and ravines does it become too deep for reindeer to paw through to the vegetation.

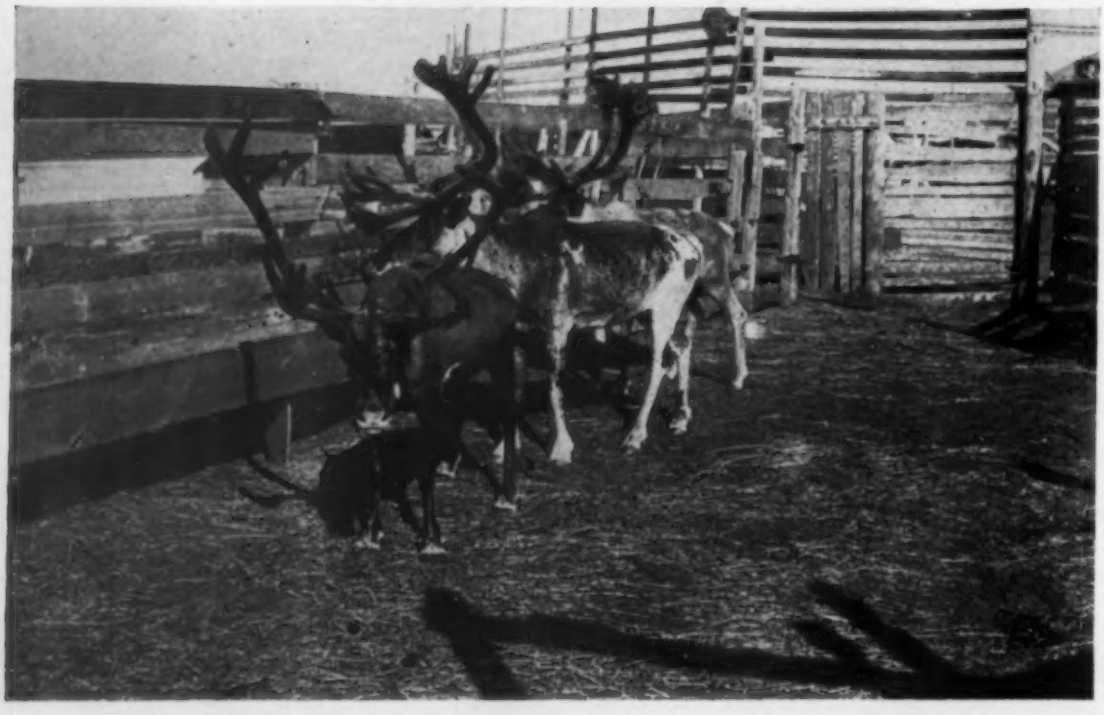
The presence of shelter and abundant snow cover affect also the vegetation. At no great distance from the coast, and in the greater part of the treeless "Barren Grounds" or tundra a very different and more luxuriant type of vegetation replaces the sedge-grass tundra of the coast. Travelling on foot soon becomes exceed-

Finnish Laps keeping tally during a reindeer round-up.

E. Blomberg, courtesy Finnish Tourist Assoc.

Reindeer corral built of driftwood logs on a narrow sandspit between the sea and a freshwater lagoon. Note the V-shaped exit, wider at the top to allow the antlers to pass through.

Reindeer in a corral. The time is late July and the steers in centre have full-grown antlers still soft and tender, and covered with velvety fur. To the left a large fawn is following its mother.



Steers with horns still in velvet. The reindeer in the foreground is the usual dark type; the piebald behind it is steel-grey with white rump and legs.

A. E. Porsild photos by courtesy of Northern Division, Dept. of Northern Affairs and National Resources.

ingly tiresome, because the ground everywhere is covered by low scrub or heath that grows in a thick and soft carpet of mosses and lichens into which the traveller sinks ankle-deep at every step. Low willow, alder and dwarf birch, together with other dwarf shrubs of the tundra dominate the herbaceous vegetation; in sheltered places, along stream and on the steep cut-banks of lakes, they may even form dense thickets.

Although the tips and young shoots of willow, dwarf birch and alder are much sought after by the reindeer in spring, autumn and early winter, it is the relative abundance, texture, distribution and composition of the lichen cover that determines the value of the winter range. For this purpose the ideal forage cover is a mixture of dwarf shrubs and lichen, usually designated the lichen-browse type. On the coastal winter range of Alaska, Palmer (1926) found the following average composition, expressed in percentages of an average total ground cover of 71%. Lichen 52%, browse 17%, sedge 20%, herbaceous, non-palatable species 6%, and non-palatable moss 5%. On winter range in the deep interior of Alaska he found a total average ground cover of 80% with the following composition: Lichen 52%, browse 21%, sedge 10%, non-palatable species 5%, moss 12%.

Because lichens furnish the bulk of the forage on the winter range, and in general are so indispensable to reindeer that without them there could be no reindeer industry, it may not be amiss to examine them a little more closely. These curious plants are really dual organisms, consisting of fungi that are parasitic on, and receive their nourishment from certain forms of primitive green or blue-green algae that, themselves, are completely enveloped by, or diffused through, the hyphae of the fungus. The alga can, and does, exist independently, but the fungus cannot: together they live in an intimate partnership known as symbiosis. The green chlorophyll of the alga assimilates carbon from the carbon dioxide of the air by photosynthesis; the fungus absorbs water from the substratum or from the atmosphere, and provides shelter and protection for the alga.

The relationship between these two entirely different plants is so intimate and close that for practical reasons, as well as for the purpose of classification, the symbiotic colonies of fungi and algae called lichens, are generally treated as taxonomical units, and, like normal plants, are divided by the taxonomist into families, genera and species.

Reproduction in the lichen plant can be sexual by means of spores produced by the fungus, or asexual by means of soredia which are single algal cells or groups of them, enveloped in hyphal tissue, and capable of growing at once into a thallus when detached. The soredia generally originate in the gonidal layer of the lichen thallus and usually appear as fine powder that, when conditions are favourable, germinate immediately to form new plants. Finally, fragments of the lichen plant after becoming separated from the mother plant, and dispersed by wind or water, may continue to grow.

Although the lichen spore and the soredia germinate readily, the lichen plant itself grows very slowly and never becomes very large in size; because the growth is terminal and apical, the lichen colony, so to speak, is ageless and may continue to grow as long as conditions are favourable. The lichen plant is very long-lived; some species growing on rocks, where they form a hard, leathery crust (*Lecanora*, *Pertusaria*, *Buellia*, etc.) may be several hundred years old. Lichens growing on soil are rather delicate as a rule and, lacking proper roots, are not firmly anchored to the soil. Therefore, the lichen mat is easily removed or destroyed by picking or by trampling, especially when dry, when it is very brittle. When moist or wet it is spongy or cartilaginous and not easily injured.

Botanists distinguish a large number of different species of lichens, several hundred of which occur on the arctic and subarctic tundra. Their palatability to reindeer varies, but with the exception of a few that are avoided, probably because of their bitter flavour, (*Cetraria nivalis*) all are eaten rather indiscriminately. Only a few species, however, because of their abundance and high palatability, are of primary importance. Except for minor variations these are all widely distributed and of circumpolar range.

* * * *

The second part of this article and list of references will appear next month.

An early photograph of Hatley Park as it was when occupied by the Dunsmuir family. The wing to the left is now obscured by trees.

Royal Roads Services College

by MABEL E. JORDON

Two years before there was a Canadian Naval Service, the construction of this lovely residence was begun. The builder did not foresee that it would one day be designated as H.M.C.S. *Royal Roads*, a training establishment for Royal Canadian Naval Volunteer Reserve officers; and still later "Royal Roads Services College."

Situated on Vancouver Island near Victoria, this estate was built by the Honourable James Dunsmuir while he was Lieutenant Governor of the Province of British Columbia, and who had earlier served as its Premier. It comprised 232 acres and was known by the family as Hatley Park. The castle-like mansion was designed by a Victoria architect and its estimated cost then, exclusive of furnishings, was almost $300,000. Construction was started in 1908 and when the Dunsmuirs left Government House (formerly Cary Castle) in 1910 they were able to move into Hatley Park. The finishings of the grounds and outbuildings were not completed until 1914.

After the passing of the Dunsmuirs it was unoccupied for a number of years except for caretakers. During World War II, in January 1941, a decision was made to establish a school for volunteer reserve naval officers on Vancouver Island. Hatley Park, being ideally situated near the Esquimalt Naval Base, was

taken over for the purpose. It was suitably re-named H.M.C.S. *Royal Roads* after the roadstead of the name nearby. The origin of the naming is of historical interest and dates back to 1790 when the Spanish were endeavouring to claim possession of the island. Lieutenant Don Manual Quimper records in his Spanish Journal that in June, 1790, he cruised these waters to plant a cross on what is now called Albert Head for the purpose of taking possession of this roadstead which he then named Valdez y Bazan (Royal Roads).

The school was later instituted as a permanent establishment of the Royal Canadian Naval College, Halifax, and was patterned after the Royal Naval College at Dartmouth, England. Vancouver Island had previously, by odd circumstances, had a naval college. When the Halifax explosion of 1917 wrecked the college buildings there, it was re-opened in Esquimalt Dockyard in the gunnery building in 1918 and continued until 1922 when a drastic cut in government estimates forced its closing. It was later continued at Halifax as H.M.C.S. *Kings*.

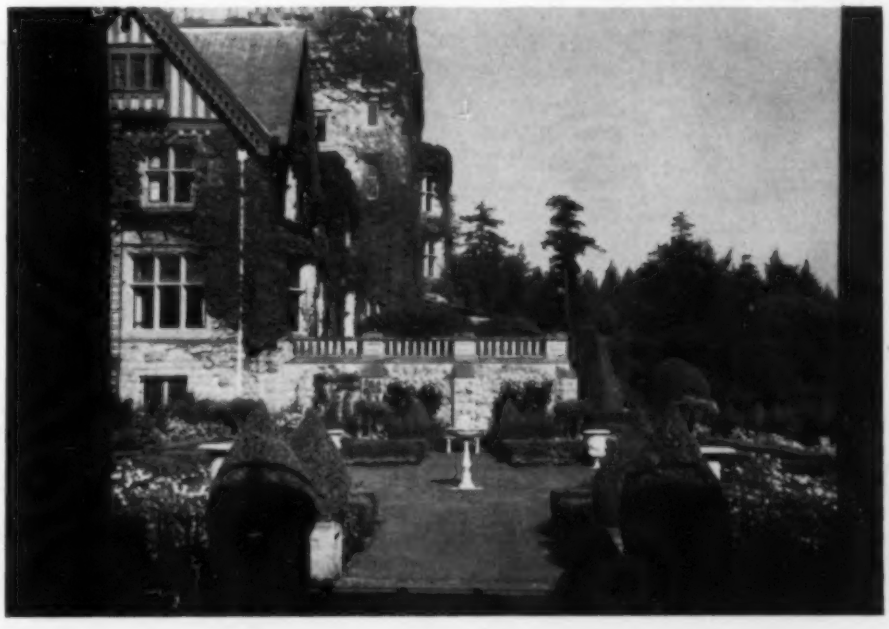
The title H.M.C.S. *Royal Roads* was discontinued in 1948 when this college and the Royal Military College at Kingston, were constituted as The Canadian Services Colleges so as to provide a joint educational and training program to produce officers for the three armed forces of Canada. The name is now Royal Roads Services College.

For admission to Royal Roads or other tri-services college a candidate must be a British subject and satisfy a number of requirements, including a personal interview with the regional board. The curriculum consists of mathematics, physics, English, chemistry, history, and a modern language which includes conversational knowledge, in addition to naval instruction, gunnery, signals, engineering, and the specialized studies of military training.

The federal government makes available each year fifteen scholarships which are given on a provincial quota basis, as well as fifteen cadetships to sons of ex-service men and service personnel—five to each service. Other annual scholarships are awarded by a number of organizations such as the Navy League of Canada, the R.C.A.F. Benevolent Fund, and the Royal Canadian Artillery Memorial Fund, to name only three.

Additional acreage was acquired adjacent to the original estate of Hatley Park and a barracks block has been erected which includes schoolrooms and the like. In the same area are certain married quarters for naval personnel generally as well as for some of the married staff.

The Hatley Park residence is now used primarily as residences for staff members. It also houses the library and some administrative offices, as well as the staff dining room and staff lounges. A good number of officers in our Canadian armed services undoubtedly have happy reminiscences of Royal Roads.



The Italian gardens at Royal Roads Services College which are maintained in perfect condition. Creeper has grown over the walls of the house since the first photograph was taken.

British Columbia Government Travel Bureau photographs.

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EDITOR'S NOTE-BOOK

Donald Cameron (*Banff School of Fine Arts*), educationalist, has been on the staff of the University of Alberta since 1930 and has directed the Banff School since 1936. Among the many courses at the school is one for photography, conducted last year by Malak, the well known Ottawa master of industrial and scenic photography, who illustrated this article. — Dr. Percy E. Moore (*Health for Indians and Eskimos*) received his medical degree at the University of Manitoba and his degree in public health at the University of Toronto. Since 1946 he has been Director of Indian Health Services for the Department of National Health and Welfare and was recently appointed delegate to the World Health Organization at Geneva. — Lyn and Richard Harrington (*The Calgary Stampede*) are well known for their gifts as author and photographer in presenting to our readers the most interesting and unusual geographical features throughout the length and breadth of Canada. — Mavis Hartman (*Battlefield House at Stoney Creek*) is a free lance writer of Hamilton, Ontario, who describes places of local historical interest. — A. E. Porsild, M.B.E. (*Land Use in the Arctic*) was appointed botanist to the Canadian Government in 1926 and in 1936 he became curator of the herbarium in the National Parks branch. He is a world authority on plant life north of the Arctic Circle. — Mabel Jordon (*Royal Roads Services College*) lives in Calgary where her husband is an engineer. She writes articles about features of interest in the west.

* * *

Fellowship Over the Pole

Three Fellows elected on 19 May, 1954 had the unique distinction of receiving their invitations to Fellowship in The Canadian Geographical Society at the North Pole. While on a flight over the Pole organized by the R.C.A.F. earlier this year, our Vice-President, General A. G. L. McNaughton, extended the invitation to three notable fellow passengers: Dr. Leonard Brockington, Q.C., well known to all Canadians for his broadcasts and his work with the C.B.C. and Odeon Theatres; the Hon. R. Douglas Stuart, United States Ambassador to Canada; and Dr. John A. Hannah, Chairman of the United States Section of the Canada-U.S. Permanent Joint Board on Defence, and Assistant Secretary of Defence at Washington.

At the same meeting of the Board of Directors of the Society the following were elected to Fellowship: Mr. Michael F. A. Hames, land surveyor on the staff of the Ordnance Survey of Great Britain, now engaged upon the geodetic control for the current re-survey of Great Britain. Mr. Harry R. Low, professor of education and former superintendent of education for the Province of Manitoba, now director of the Bureau of Current Affairs in the Department of National Defence. Mr. Low travelled in the Northwest Territories as adviser on educational facilities for the Eskimo, Indian, and white population. Mr. M. W. Mackenzie, president of Cana-

(*Continued on next page*)

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EDITOR'S NOTE-BOOK

Donald Cameron (*Banff School of Fine Arts*), educationalist, has been on the staff of the University of Alberta since 1930 and has directed the Banff School since 1936. Among the many courses at the school is one for photography, conducted last year by Malak, the well known Ottawa master of industrial and scenic photography, who illustrated this article. — Dr. Percy E. Moore (*Health for Indians and Eskimos*) received his medical degree at the University of Manitoba and his degree in public health at the University of Toronto. Since 1946 he has been Director of Indian Health Services for the Department of National Health and Welfare and was recently appointed delegate to the World Health Organization at Geneva. — Lyn and Richard Harrington (*The Calgary Stampede*) are well known for their gifts as author and photographer in presenting to our readers the most interesting and unusual geographical features throughout the length and breadth of Canada. — Mavis Hartman (*Battlefield House at Stoney Creek*) is a free lance writer of Hamilton, Ontario, who describes places of local historical interest. — A. E. Porsild, M.B.E. (*Land Use in the Arctic*) was appointed botanist to the Canadian Government in 1926 and in 1936 he became curator of the herbarium in the National Parks branch. He is a world authority on plant life north of the Arctic Circle. — Mabel Jordon (*Royal Roads Services College*) lives in Calgary where her husband is an engineer. She writes articles about features of interest in the west.

* * *

Fellowship Over the Pole

Three Fellows elected on 19 May, 1954 had the unique distinction of receiving their invitations to Fellowship in The Canadian Geographical Society at the North Pole. While on a flight over the Pole organized by the R.C.A.F. earlier this year, our Vice-President, General A. G. L. McNaughton, extended the invitation to three notable fellow passengers: Dr. Leonard Brockington, Q.C., well known to all Canadians for his broadcasts and his work with the C.B.C. and Odeon Theatres; the Hon. R. Douglas Stuart, United States Ambassador to Canada; and Dr. John A. Hannah, Chairman of the United States Section of the Canada-U.S. Permanent Joint Board on Defence, and Assistant Secretary of Defence at Washington.

At the same meeting of the Board of Directors of the Society the following were elected to Fellowship: Mr. Michael F. A. Hames, land surveyor on the staff of the Ordnance Survey of Great Britain, now engaged upon the geodetic control for the current re-survey of Great Britain. Mr. Harry R. Low, professor of education and former superintendent of education for the Province of Manitoba, now director of the Bureau of Current Affairs in the Department of National Defence. Mr. Low travelled in the Northwest Territories as adviser on educational facilities for the Eskimo, Indian, and white population. Mr. M. W. Mackenzie, president of Cana-

(*Continued on next page*)

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(*Continued from previous page*)

dian Chemical and Cellulose Company and former Deputy Minister of Trade and Commerce, who has long been a member of the Society and interested in the promotion of its aims. Dr. R. O. MacFarlane, formerly Deputy Minister of Education for Manitoba and now director of the School of Business Administration at Carleton College in Ottawa, who for five years has served on the Editorial Committee of the Society. And Mr. Allan A. Macfarlan, who for some fifteen years travelled the world visiting little-known places. Writer and professor, Mr. Macfarlan now lectures at the Lycée Français de New-York.

* * *

Visit of Students

On Monday, 17th May, Mr. J. E. Smith of the Normal School, Ottawa, brought a party of twenty-three school teachers in training to visit The Canadian Geographical Society's house at 54 Park Avenue for the purpose of seeing the facilities which the Society can offer them in preparing their task of teaching geography. They were also shown the editorial department, and some of the steps by which the Canadian Geographical Journal is produced. They showed the greatest interest, and on leaving each one was presented with specimens of the Society's publications.

AMONGST THE NEW BOOKS

The Natural History of Mammals

by François Bourlière

(McClelland & Stewart, Toronto, $5.75)

Most field workers in zoology must, by force of circumstance, confine their writing largely to the recording of their own observations and it is only the occasional scientist who concerns himself principally with the synthesis of material provided by others. Nevertheless, the man who undertakes synthesis is often the more productive investigator, since the original purpose of the recording of the thousands of observations of field workers is to make possible the formation of valid conclusions after reviewing these multitudinous facts.

Synthesis has been the chief concern of François Bourlière in this volume and he has collated facts from all over the world, drawing on an extensive bibliography and an intensive knowledge of his subject. The result is a book of absorbing interest to the lay reader and a work of reference of genuine value to the zoologist. Many unfamiliar facts are presented and their significance in the larger scheme made apparent. The illustrations are excellent and many of them, to say the least, unusual. Altogether, one of the best books of its kind, and the most useful, to appear for some time.

DOUGLAS LEECHMAN

* * *

Japan's Natural Resources

by Edward A. Ackerman

(University of Chicago Press, $25.00)

Although World War II produced much destruction in the Pacific, a few good features have arisen indirectly as a consequence of the hostilities, one of these being the great stimulus given to research on Far Eastern problems. In order to conduct military operations and later to rehabilitate the devastated areas, the Allied Powers assembled a tremendous amount of factual material on many countries. No individual or private organization could have gathered a like amount of data in so short a time. Much of the information which was initially obtained for military and occupation purposes has been made publicly available in one form or another, and *Japan's Natural Resources* by Dr. Edward A. Ackerman is one such example. Dr. Ackerman has drawn heavily upon information gathered by the Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers, in his compilation of the present volume.

Dr. Ackerman, by training and experience, is well qualified to write a book on Japan's resources. He was

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formerly on the staff of Harvard University and at the present time is on leave of absence from the University of Chicago where he is a Professor of Geography. From 1946 to 1949 he was Technical Adviser and Visiting Expert Consultant for the Natural Resources Section, GHQ—SCAP, Japan. He conducted field studies in Japan and has a first hand knowledge of the country's basic problems. Many other specialists have left their imprint on the volume and have contributed to its accuracy by their editorial help and criticism.

There are few books in any language that deal with a country's resources in a more comprehensive and scholarly manner than the present volume. It is unusually well illustrated and documented. There are ninety-eight maps and diagrams which are cartographically well executed. The photographs, which number almost three hundred, depict innumerable phases of Japanese economic life. Air photographs, both verticals and obliques, are used to good advantage as illustrations. The tables, which number one hundred and thirty-eight, provide the necessary background of statistical material. The appendices give much pertinent information such as conversion factors for English, metric, and Japanese equivalents, a glossary of special terms, and many bibliographical references. Notes are also included for each chapter to explain items that require clarification or comment. The index is unusually complete and detailed and greatly enhances the usefulness of the volume for reference purposes.

The volume is divided into three parts. Part I deals with the character and requirements of Japan's resources. There is an introductory chapter on the physical features of the land with subsequent chapters covering food, energy, and fiber sources, nonmineral construction materials, and minerals for construction and industrial production. The chapter on fisheries is particularly complete and timely in view of the importance of fishing to Japan, and as far as Canadians are concerned, to an understanding of the international aspects of Japan's industry.

Part II discusses the possible advances in the efficiency of resource use and associated problems. It deals with the positive aspects of what may be done to utilize most effectively Japan's limited resources. Since Japan must import food for her present population and the rate of increase is rapid, the problem of increasing food production is vital to Japan and so it is discussed in detail. Any marked success that Japan may achieve in developing new and improved techniques of increasing her food supply will probably react to the benefit of other countries of Asia, because Japanese methods of production are being closely studied, often copied, and Japanese technical personnel are frequently sent to Southeast Asian countries.

Part III is entitled "Japan and the Western World". It is the smallest portion of the book. Ackerman raises some important, although not widely enough publicized, problems. He points out that "Japan does not have the capacity within its 1952 territory to produce enough materials for the food, fuel, clothing, and housing its people need, *even on a scale of consumption below prewar levels.*" (p. 559 italics added). A summary is given of Japan's resource position in the near future, a picture none too bright. The concluding chapter discusses the technological aspects of Japan in relation to the underdeveloped areas of Asia.

Because of the high price of the book (U.S. $25.00), the volume will unfortunately have a small circulation and its distribution will be restricted largely to libraries. It forms an excellent companion volume to Trewartha's: *Japan, A Physical, Cultural, and Regional Geography*, another book which resulted largely from the needs of World War II. Since a large and growing population is one of Japan's principal concerns when her resources are considered, this reviewer would have liked to have found one portion of the book dealing specifically with the population problem. There are numerous references to population scattered throughout the book, but no single systematic treatment of it.

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The Hill of Devi

by E. M. Forster

(Macmillan, Toronto, $3.00)

The author, E. M. Forster, certainly has other claims to fame than as the temporary European secretary to the Maharajah of a minor Native State in Central India. Nevertheless he occupied that curious position for a short time in 1912 and again in 1921, and this book is a sketch of his experiences and impressions during those interludes in his career as a serious writer.

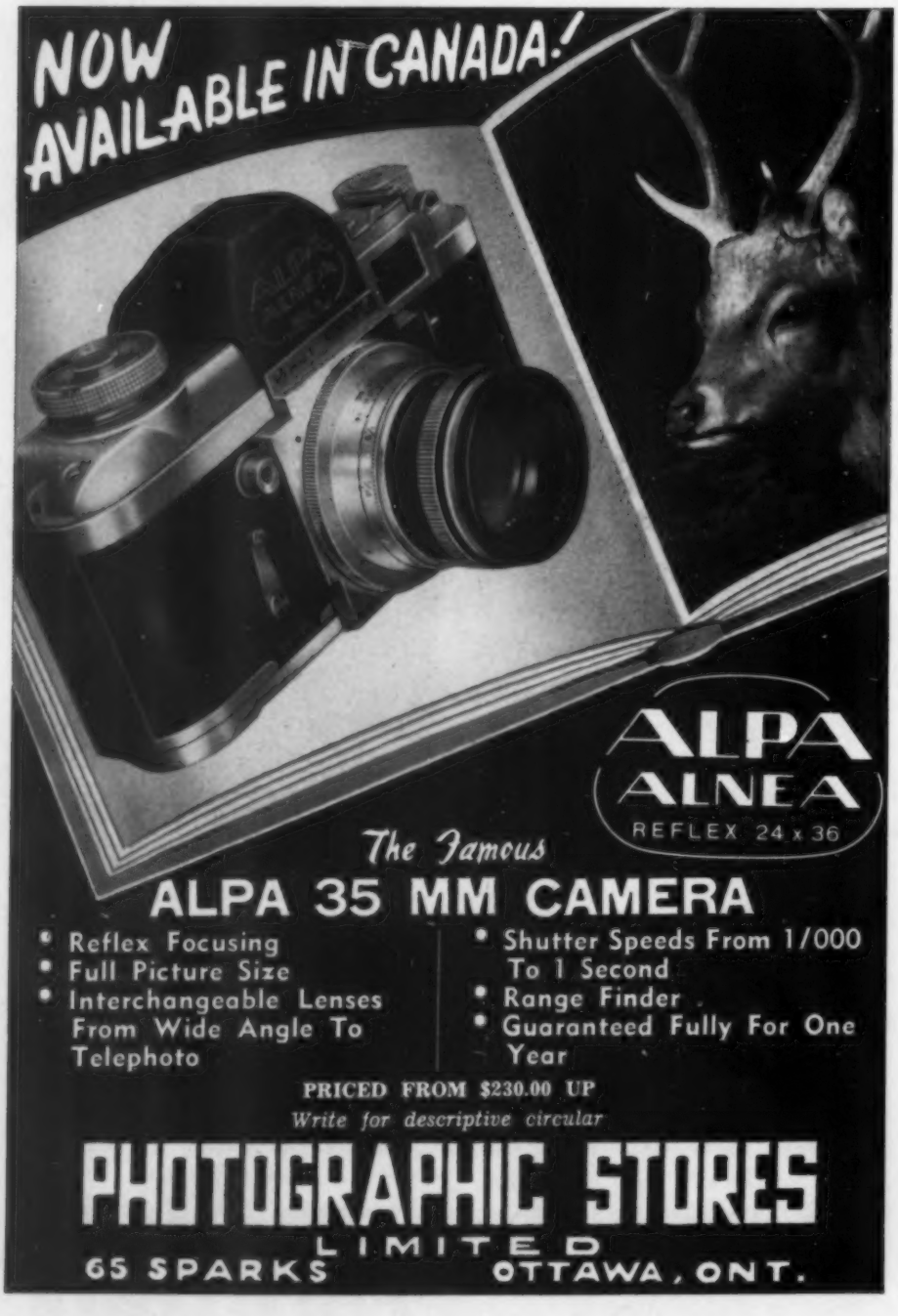
Fortunately he had the faculty of adopting the life of the Indian people among whom he was living, at least most of the time he wore their clothing, and he was sufficiently broad-minded and adaptable to share in their amusements and to take part in their religious exercises with the result that they were more ready to accept him as one of themselves than they would have been if he had adopted the absurd attitude of superiority that most Englishmen feel is required of them.

There were times, he admits, when he felt that he must have looked a "bit of a fool" and indeed the photographs of him in native clothing do rather bear out his fears in this respect. However he genuinely liked the people, in spite of their fantastic incompetence especially noticeable when confronted with western gadgets, and the people seem to have liked him.

At one time he was a sort of Clerk of Works for a new palace that was being built, quite unneeded and equally impossible to pay for. An elaborate flower garden had been planned and laid out in the desert soil. A maze of taps and pipes led from a water cistern that was to be kept full by an electric pump. The pump, unfortunately, could be used only when the electric light plant was running and this was only at night when lights were needed. While the lights were burning, there wasn't enough power to operate the pump as well, so the cistern never was filled and the flower beds had to be watered by hand from two small and inadequate wells.

The Maharajah, the author feels, was certainly a genius and possibly a saint. As a ruler he was less of a success and one hardly knows whether to censure or condone his eventual flight from reality to take refuge in religion. Today the State of Dewas Senior no longer exists, having been absorbed into the new India. As a glimpse of an India that once was and never again shall be, The Hill of Devi is well worth reading.

DOUGLAS LEECHMAN



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Quebec in Your Car

by John and Marjorie Mackenzie

(Clarke, Irwin, Toronto, $3.00)

For those intending to spend a holiday in the Province of Quebec, whether travelling by car or any other means, this book will prove a most helpful and friendly guide. The authors rightly regard sight-seeing as an art: "It needs a touch of genius to keep it glowing and inspired. It can be ruined if it is laboured and overdone." It is obvious that the authors themselves have not only mastered the art thoroughly but have also the skill to impart their knowledge to the prospective holiday-maker. Their all-round advice shows that they know full well how to enjoy wisely the scenes and places through which they travel and also that the loveliest scenery in the world can be spoilt if you have nowhere to eat and sleep after having seen it. On these essential points of comfort the authors consider the varying tastes and resources of travellers who may demand the best, or who may flee from the conventional comforts and bills of the Ritz Carlton, or Chateau Frontenac, to seek the most modest pension available. The authors are also well versed in all that the Province of Quebec has to offer in the way of summer and winter sports and what they tell us will be a lure to the golfer, fisherman, or skier. But for those who merely want to amble along visiting historic sites, Quebec answers their needs better than any other province in Canada. The brief historic sketches given in the appropriate sections are most satisfactory and well timed; they are of genuine interest whether one is sight-seeing or not and make pleasant reading for their own sake.

Each chapter is preceded by a road log giving the mileage for the highway under consideration besides many useful hints dealing with roa and traffic conditions likely to b encountered. Even those who ar not planning to visit Quebec will fin much pleasure in these pages an particularly in the well chosen illus trations. S. Seele

* * *

Austria

by Monk Gibbon

(B. T. Batsford, London:
Clarke, Irwin, Toronto, $4.25)

Monk Gibbon brings to the writin of this book an intense love of Austri and its people and an intimate knowl edge of its history, its arts and archi tecture, which by its erudition an charm of style continually enchan the reader and gives another proo of the inspired choice of autho which characterizes the Batsfor firm.

Mr. Gibbon's views on this presen frontier land between West and Ea are expressed in his Introductio "Her future must be that of anothe Switzerland . . . if Austria can weld political machine on the lines of th Swiss, she could become the patter of an enlightened nationalism, o even head a Central Europe Federa tion." He feels that the Austrian ha all the qualities that will make an ideal European, that he stands for the one thing that can save Europe from itself. He stands for sanity, courtesy, moderation, tolerance, cour age and patience in adversity.

Contenting himself with only a brief excursion into politics, the author soon enters into the more congenial theme of the joys in store for those who plan a visit to Austria. As he says, "a little geography is helpful, and quite a stiff dose of history can stimulate interest con siderably". There follows a most alluring demonstration of how this can be done, and the doses of history are so skilfully administered that one wishes for more of them. They are anything but "stiff".

We learn the topography of Aus tria, a definitely Alpine country. We are reminded that the all-important factor in Austria's evolution is the Danube, "sweeping in a great curve north of Munich in Bavaria and con

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tinuing in a line roughly parallel with the Austrian Alps, but well clear of them, as if it viewed them with suspicion, although not above receiving the contributions of their northern-flowing streams".

There follows a brief but masterly review of the history from the time of the Celts in 400 B.C., down through the centuries to our own era.

"It would take a half a lifetime to see and really apprehend Vienna's riches," writes Monk Gibbon in his enthusiasm for the "Queen of Cities". Nothing daunted, he contrives to bring together in two wonderful chapters many of the elements of these riches, the baroque architecture and gorgeous sculpture of its churches and palaces and libraries and museums and the wealth of art treasures in its galleries. He points out the peculiar place Austria occupies in the baroque and rococo periods of art. He claims we are as far from the baroque in spirit today as it could well be possible for one style to be from another. The dominant note in our architecture is function, utility. The dominant motive of the baroque architecture was, quite frankly, enchantment. No wonder he calls it "visual rapture". Not content with visual rapture, the passages devoted by Gibbon to music and its place in Austrian life are among the most delightful in the book.

Mindful that he is writing a guide-book, the author reluctantly leaves Vienna, not without many a wistful recollection of its gaieties and its well-known eating-places, and launches forthwith into a series of memorable chapters on the other provinces of Austria. It would be hard to find a more helpful or more readable guide, and one does not need to be told that the author is a poet and philosopher and a most gifted travel writer.

A map of Austria and a diagram of central Vienna, together with topical page-headings and an excellent index, are helpful to the reader and should prove even more so to those fortunate people who can visit this lovely land. The numerous beautiful photographic illustrations add immeasurably to the interest and attractiveness of the book.

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